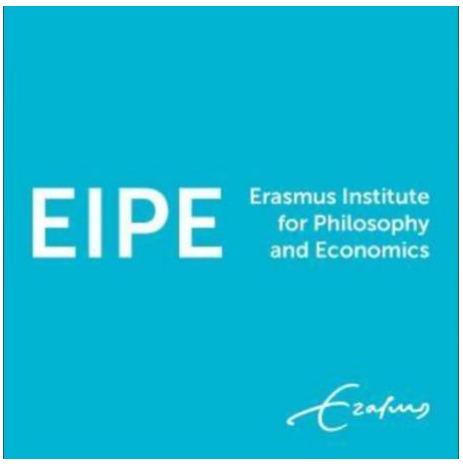

July 24, 2020

A Defence of Health-Related Quality of Life Measurement Against Hausman's (2015) Critique

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Research Master Thesis (30EC)

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Word Count: 29.986

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Abstract

In this thesis, I shall discuss 'Health-Related Quality of Life' (HRQoL) measures and defend these measures against Hausman's (2015) critique. Hausman argues that HRQoL measures stand methodologically as well as conceptually on shaky grounds and should be abandoned. Contrary to Hausman's conclusion, I defend HRQoL measures and argue that these systems are both normatively and methodologically justifiable. Furthermore, I argue that, even in the light of the empirical challenge of preference change, the conclusion should not be to reject HRQoL measures. Instead, I propose to see HRQoL as a vital component in a broader system of health measures.

List of Abbreviations & Figures

Abbreviations:

Expected Utility	...	*EU*
Health-Related Quality of Life	...	*HRQoL*
Health-Utility Index, Mark 3	…	HUI-(3)
Quality-Adjusted Life Year	...	*QALY*
Revealed Preferences	…	RP
Revealed Preference Theory	...	*RPT*
Weak Axiom of Revealed Preference Theory	…	WARP

Figure:

I. Introduction

This thesis is concerned with 'Health-Related Quality of Life' (HRQoL) measurement. HRQoL-measurement aims to evaluate the overall impact of health on a person's wellbeing. Furthermore, HRQoL measures aim to make this impact comparable among individuals. Imagine two persons: one is suffering from a migraine while the other one has a broken toenail. HRQoL measures the impact of migraine and of the broken toenail on the wellbeing of the two persons' respectively. Additionally, are the HRQoL values of these two persons comparable. The way HRQoL achieves this, is by eliciting individual preferences among alternative health states. This allows to compare how much a person penalises a health state compared to full health and alternative health states. Comparability of HRQoL values between different individuals is reached since all respondents report their preferences among the same health states. Thus, the individual evaluation reports the subjective take on these health states.

A working HRQoL measurement system is highly relevant for policy purposes. It allows to measure population health and to evaluate the effectiveness of treatments in terms of average HRQoL improvements (Hausman 2015). Moreover, a HRQoL measure would allow to address many of the distributive discussions in public health (cf. Ezekiel 2020; Goodnough et al. 2020; The Economist 2019; Jenkins 2019; Noury 2020) in an evidence-based manner. Policy circles are worried about rising health care costs arising from a steadily ageing population (EXPH 2016; HHS 2018; Prasad 2020) as well as from drug pricing systems in a not fully competitive pharmaceutical industry (Scherer 1993; Scherer 2000; Grabowski and Vernon 1992). Incentive structures within a health care system, as well as the question who should pay for health care, is both a policy concern (Banerjee and Duflo 2006; Avraham 2011) and topic of political controversies (Glenza 2019; Robertson 2020). Overall, besides a general recognition of the urgency to reform health care, substantial disagreements on the right solution in each of these points prevail. However, if health were measurable, the above-delineated discussions could be

approached in an evidence-based manner. Policies could be evaluated based on their potential to increase population health, measured in terms of HRQoL.

However, HRQoL-measurement is a highly controversial endeavour too. One prominent critique of HRQoL measures is put forth by Hausman (2015) in his book "Valuing Health". Hausman argues that HRQoL measures should be abandoned because they have severe conceptual flaws. Hausman justifies this conclusion based on the following claims: First, Hausman doubts whether individuals can form judgments that discern between different health states. Second, Hausman argues that even if health should be evaluated based on individual judgments, these judgments depend on the goals or values that an individual aims to achieve: it would be better to measure what the individual judgments depend on, rather than the judgments themselves. Third, Hausman argues that preferences as a methodological tool are not suited to measure adequately a person's judgments. Forth, Hausman argues that measuring health by individual judgments is empirically flawed: observations of preference change. These four claims show that, according to Hausman, health should not be evaluated in terms of HRQoL.

In my thesis, I shall defend HRQoL measures against Hausman's (2015) four claims respectively. First, I will argue that even if individuals are not able to form unbiased and correct judgments among different health states, these judgments are still indicative of wellbeing and thus can be used for HRQoL-measurement. Second, I will maintain that even if it is beneficial to investigate what individual judgments among health states depend on, implementing such a measure would suffer from a trade-off between accuracy and efficiency: Not every basis of individual judgments can be considered. Third, I will argue that preferences as they appear in revealed preference theory can be understood as a methodological tool and therefore that HRQoL-measurement through preference elicitation is justifiable. Fourth, and in the light of the empirical challenge of preference change, I will argue that Hausman draws the wrong conclusion. HRQoL measures should not be abandoned but rather their scope has to be limited. I will argue that HRQoL should become a vital part of a broader, yet to be constructed, health evaluation system.

The remainder of this introductory Chapter is organised as follows: Section 1 introduces HRQoL-measurement based on preference elicitation and Section 2 explains Hausman's (2015) four points of critique thereof. In Section 3, I give an outline of the argumentative strategy proposed in this thesis.

1. Preference-Based HRQoL Measures

In this Section, I will shortly explain the underlying features of HRQoL measures. Since this thesis is concerned with Hausman's (2015) critique of HRQoL-measurement, this Section aims to make clear with what kind of characterisation of HRQoL Hausman is working.

As Hausman (2015) points out, the literature on health measurement does not offer a single authoritative definition of HRQoL. However, what becomes evident, according to Hausman, is that HRQoL is defined in terms of individual preferences among different health states. Thus, the bearing of a health state on a person's wellbeing is identified by a person's preference among different health states.

Preferences are binary comparative evaluations of alternatives. This means that preferences compare different alternatives pairwise and inform about how one evaluates different states of the world and how much one prefers one alternative more than another (Bradley 2018). Consider, for example, a broken arm which inflicts on a person moderate pain and moderate problems with mobility. The idea of preference elicitation is to identify how much worse off that person is, given the issues with pain and mobility, compared to not having any problems at all. Eliciting several preferences among alternative health states, a measure of HRQoL can be constructed which informs how worse off exactly one is, given a health state (Hausman 2015).

The unit of analysis to evaluate different health states in terms of wellbeing is called 'Quality-Adjusted Life Year' (QALY) (Hausman 2015). QALYs report the value of a person's HRQoL in a given year. To do this, a person gets assigned 1 QALY for one year in full health and 0 QALY if a person were

dead. Within this interval, different health states imply different levels of HRQoL. The worse the condition is, the lower the QALY (Hausman 2015). For instance, the HRQoL due to a broken arm might play out as follows: A person loses 0.2 units of wellbeing compared to being healthy due to the issues with mobility and pain inflicted by the broken arm. Assuming that the duration of these health states is six months, this would result in a QALY value of 0.9 in the given year (if the broken arm is the only health condition of that person). For six months, the HRQoL in terms of QALY's would be 0.8 and for six months the value of health would be 1, resulting in a QALY of 0.9.

To identify the value of health states, different methodologies exist (cf. Bognar and Hirose 2014; Hausman 2015). One method consists of so-called 'time trade-off' questionnaires. These questionnaires ask respondents for their judgments among different health states. For instance, time trade-off questions ask respondents whether they would prefer seven years in full health or ten years in a given health state (such as moderate pain and moderate issues with mobility). An alternative methodology regularly employed is the 'standard gamble'. In a standard gamble, respondents face a choice between two alternatives. One of these alternatives is a health state which is given with certainty. Alternatively, a respondent can also choose an option where full health is given with a certain probability *p* and death with a probability *(1-p)* (Garza and Wyrwich 2003). Fundamentally, the main aim of all these methodologies is to reveal individual evaluations over alternative health states by letting individuals choose different answers (Hausman 2015).[1] For a detailed discussion of these methods, see Bognar and Hirose (2014), Hausman (2015) and McDowell (2009).

Given these tools to elicit comparisons over alternative health states, the value of health in terms of subjective wellbeing can be identified. Moreover, it is also possible to compare HRQoL values among different individuals. To see how these two points are achieved precisely, the exact measurement system

[1] Some methods come closer to the theoretical ideal of preference elicitation than others. In particular the standard gamble is usually interpreted as closest to identify revealed preferences. However, the main problem of all these methods is that it is not possible to observe individual decisions given counterfactual health states. Thus, the aim is to get as close as possible to identifying individual judgments via choices among hypothetical alternatives (Hausman 2015; Torrance, Furlong and Feeny 2002). To clarify, whenever I talk about preferences among health states, I mean preferences among hypothetical health states.

has to be analysed. QALYs are usually identified by two measurement systems, the Health-Utility Index, Mark 3 (HUI-(3)) and the EQ-5D (Hausman 2015). These measurement systems differ slightly in their conception. The HUI-(3) usually employs the standard gamble in addition to some other tools. These methods are used to elicit preferences among eight dimensions: 'vision', 'hearing', 'speech', 'ambulation', 'dexterity', 'emotion', 'cognition' and 'pain' (Horsman et al. 2003). Allowing for five or six graduations for each dimension, the HUI-(3) distinguishes between 972.000 different health states (Hausman 2015). The EQ-5D distinguishes between five dimensions to measure a health status: 'mobility', 'self-care', 'usual activates', pain/discomfort' and 'anxiety/depression'. These dimensions are further rated by three levels of severity. Thus, the EQ-5D distinguishes between 243 (that is 3^5) different health states (EuroQuol 2018). Respondents have to report their judgments given these health states as well as given the different levels of severity compared to full health. Having elicited a number of these judgments through either the standard gamble or time trade-off questionnaires, it becomes visible how an agent evaluates the different health states and their severity. This allows to assign QALY values to the given health states. For details compare Hausman (2015). Interpersonal comparability is reached through specifying full health at the value of 1 QALY and death with 0 QALY's as well as the pre-defined dimensions of health and their severity levels. This allows to set comparisons (full health and death) that are equal for all individuals. Moreover, do all respondents report their judgments among the same alternative health states. Thus, what changes are the individual judgments among different dimensions, making these responses comparable (Hausman 2015; EuroQuol 2018).

Once preferences are elicited and the QALYs computed, health states are comparable among individuals. Consequently, it is possible to evaluate the cost-effectiveness of treatments. This is, because if health can be measured the cost of health improvements can be identified. Similarly, also the distribution of health in a given population can be identified (Hausman 2015). In the following, I will take the present analysis of HRQoL measures as basis and simply assume that cost-effectiveness and population health measurement are possible. In Chapter IV I will come back to this point and limit the scope of HRQoL measures.

2. Hausman's (2015) Critique of HRQoL Measures

Hausman (2015) rejects HRQoL measures based on a series of interconnected claims.

First, Hausman (2015) doubts whether individuals can form meaningful judgments among different health states. Hausman raises these doubts since, according to him, hardly anyone ever thinks about choices like having either seven years in full health or ten years in a particular health state. Therefore, given the serious implications of such a decision and given that no one can know precisely what the implications of such a health state are, Hausman argues that individual judgments about these conditions are not reliable and informative.

Second, Hausman (2015) argues that even if health states should be evaluated based on their bearing on individual wellbeing, individual judgments are not the right approach to evaluate them. This is because judgments among health states depend on the goals and values that an individual wants to achieve with their health. Consequently, measuring judgments is only an imperfect proxy of these underlying goals, additionally picking up biases and noise. Instead, measuring what individual judgments depend on, would avoid the biases and noise that preference-based measures contain.

Third, Hausman (2015) argues that preferences as a methodological tool are not suited to adequately represent a person's judgments. Hausman argues that when economists elicit preferences by the responses of individuals, they measure the preferences and beliefs of a decision-maker given their answer. For instance, imagine that you love to play the piano and that if your preference given a certain health state is elicited you wrongly believe that you are not able to play the piano in this health state. Consequently, you will assign this health state a deficient value of HRQoL. But in that case, your measured preferences are not what your true judgment (given the right information) about this health state would be. Moreover, it will not be possible to elicit your preference independently from your belief

since both together influence choices. Therefore, Hausman concludes that preferences are not suited to identify a person's judgments.

Fourth, Hausman (2015) discusses the empirical observation of preference change and that in some instances, such as after a surgery which increases the health of a patient, the subjectively reported wellbeing decreases. Similarly, do individuals who are, generally speaking, in a health state where they suffer a physical impairment (such as being blind or deaf) report relatively high levels of wellbeing. According to Hausman, these results show that there is something fundamentally wrong in the idea of evaluating health in its bearing on wellbeing.

There is an additional doubt of Hausman (2015). Namely, whether wellbeing itself can be measured to identify the value of health states. Given the heterogeneity of wellbeing and the difficulty in comparing wellbeing across individuals, Hausman questions the underlying assumption that wellbeing itself is measurable. I simply assume that wellbeing can be measured, and I do not discuss this point.

I now turn to introducing my argumentative strategy and how I am going to counter Hausman's (2015) arguments.

3. Argumentative Strategy

In this thesis, I shall engage with Hausman's (2015) arguments one to four. Building on the assumption that wellbeing itself is measurable, I will defend HRQoL-measurement against Hausman's critique. However, I will also argue that HRQoL cannot be the sole measure of health. Instead, I shall suggest that HRQoL should be one dimension of a yet to be determined broader measure of health. My thesis will achieve this based on the following three Chapters:

In Chapter II, I will engage with Hausman's (2015) claims one and two and defend the reference to individual judgments in HRQoL-measurement. Concerning Hausman's first argument, that individuals are not able to form judgments among different health states, I will present Hausman's (Hausman and McPherson 2009; Hausman 2012) 'evidential view' which defends the use of individual judgments to provide information about wellbeing. Moreover, I will combine the evidential view with an argument of Barnes (2009) which defends the first-person testimony about one's own wellbeing. Combining these two points I will argue that individual judgments among health states are, even if not perfect, still a good and reliable approximation to a person's wellbeing. Thus, I suggest that individual judgments can be used for HRQoL-measurement. With regards to Hausman's point two – that even if one accepts that health should be measured in terms of subjective wellbeing, relying on judgments is not necessarily the best way to do so – I will maintain that practical concerns regarding the implementation of such a measure prevail. Individuals care about many things concerning their health and different individuals care about different things with regards to their health. Therefore, there will be a trade-off between accuracy and measurability when it comes to construct a HRQoL measure: Not every basis of individual judgments can be considered. Yet, this is not an argument against identifying the basis of individual judgments. I will propose that the dimensions on which health is evaluated are up to the task and indeed relevant for health measurement.

Chapter III addresses Hausman's (2015) claim three and discusses the methodological issues surrounding HRQoL-measurement. By combining three arguments, by Guala (2019), Clarke (2016) and Thoma (2020b) I will propose to think of the preferences that are elicited to construct HRQoL measures as a representation of the individual judgments which use I defend in Chapter II.

In Chapter IV, I will address Hausman's (2015) claim four. That is, I will engage with the critique on HRQoL-measurement arising from the systematic difference in responses of individuals experiencing a health state as opposed to members randomly picked from the general public. With regards to these findings, Hausman makes two points. First and foremost, Hausman argues that there might be a substantial flaw involved in measuring health in terms of wellbeing. I agree with Hausman on this point.

But contrary to Hausman, I do not take this argument to undermine the ability to measure HRQoL. Instead, I highlight that a general evaluation of health states should consist of one dimension which measures the impact of health on wellbeing or HRQoL. Second, however, Hausman points out that if one would want to continue measuring HRQoL, the question who should be asked has to take central stage. Given that there is no uncontroversial explanation of what explains the preference change, Hausman suggests that focus groups should consist of a member of the general public as well as current patients. Contrary to this position, I will argue that it is not clear why asking both members of the public and patients should improve the estimate, given that there is a significant difference in the responses of these two groups. Instead, I highlight based on Paul's (2014) book on 'Transformative Experience' that patients have unique insights into what it is like to have a health condition. Thus, their judgments should be used and respected.

Chapter V concludes and discusses further directions the present analysis could lead to.

II. Normative Justification of HRQoL Measures

In this Chapter, I shall argue that individual judgments are a reliable, albeit imperfect, guide to a person's wellbeing. Moreover, I will show that Hausman's (2015) critique against individual judgments to evaluate health states is not able to undermine this position.

The normative justification to rely on individual judgments is – curiously enough – based on work by Hausman himself (Hausman 2012; Hausman and McPherson 2009). This position, Hausman calls it the 'evidential view', boils down to the observation that all theories of wellbeing have some substantial flaws and thus they are not suited to guide policymaking. But individual judgments contain truth conditions about wellbeing, which allow to inform policy measures that aim to increase wellbeing. In the specific case of HRQoL-measurement, however, Hausman (2015) doubts whether individual judgments are suited to provide meaningful guidance. To understand this argument, I first introduce Hausman's take on measuring individual judgments. Since he does not distinguish between methodological and conceptual worries to rely on judgments, I will distinguish among these two dimensions and postpone the methodological discussion to Chapter III. Second, I will explain Hausman's conceptual worry to rely on judgments for HRQoL-measurement. In a nutshell, Hausman doubts that judgments among health states are meaningful since they require substantial information and cognitive efforts. Something, that cannot be assumed from respondents. Finally, I defend HRQoL-measurement based on individual judgments. This is, I will show that from a normative perspective, Hausman's critique does not undermine the evidential view. To strengthen this point I will combine the evidential view with Barnes (2009) defence of the first-person perspective as authority about one's own wellbeing. Before concluding, I consider some objections to my argument.

This Chapter is organised as follows: In Section 1, I will explain the evidential view. Section 2 introduces Hausman's claim that in the case of HRQoL-measurement, individual judgments are not

reliable. Section 3 presents my counterargument to Hausman's claim. Section 4 considers some objections to my argument and Section 5 concludes.

1. The Evidential View or Why Individual Judgments Should Be Respected

In this Section, I will present Hausman's (Hausman and McPherson 2009; Hausman 2012) evidential view. Hausman argues that all theories of wellbeing contain some severe deficits and, thus, they are not able to inform policies which aim to increase wellbeing. However, Hausman points out that individual judgments can be used as a source of information about a person's wellbeing. In Subsection A, I will report Hausman's take towards theories of wellbeing and Subsection B discusses Hausman's argument in favour of individual judgments.

A. Theories of wellbeing and their shortcomings

Hausman (2015) distinguishes between four groups of theories of wellbeing: Preference or desire satisfaction theories, mental state theories, objective list theories and the view that wellbeing consists in flourishing. In the following, I will shortly elaborate on these theories, as well as report Hausman's doubts why all these theories contain some serious flaws.

First, consider desire satisfaction theories. Desire satisfaction accounts of wellbeing consist in the idea that the satisfaction of a person's desires contributes to their wellbeing.[2] The problem with a desire satisfaction view is, as Hausman and McPherson (2009) point out, that the satisfaction of desires in itself does not contribute to an agent's wellbeing. The point the authors make is that it is true that if a preference is satisfied, an agent is better off. However, it is not the satisfaction of the desire itself which contributes to the wellbeing but the fact that the world is, as the person wants it to be.

[2] On some accounts, only the satisfaction of well-informed, self-interested desires contributes to a person's wellbeing. On other, more controversial accounts, the satisfaction of all desires does increase a person's wellbeing (Parfit 1986).

Second, consider mental state theories. Mental state theories maintain that desirable mental states are intrinsically good. Hausman (2012; 2015) points out that mental state theories are not sensitive to the physical world. To see why this might be problematic, consider two individuals who, by assumption, have the same mental states. Both think that their life is a full success and that they reached what they had wished and aspired for. For one individual, this is true. For the other person, however, this is not the case. Her mental states are based on an erroneous imagination and her projects failed miserably. Based on these differences, can we infer that both lives go the same way and are characterised by equal amounts of wellbeing (Hausman 2012, 79)?

A third group of theories of wellbeing are objective list theories. Objective list theories maintain that certain items – that appear in a specific theory – are good or bad for the life of a person. The crucial point is that these items are independent of individual desires or specific circumstances and apply for all individuals to the same extent. Various attempts have been made to form such lists (cf. Quizilbash 1998; Nussbaum 1998), which, depending on the author, consist of items like friendship, success in life, knowledge, family, or mental states (Parfit 1986). The problem Hausman (2015, 65) identifies with objective list theories is that these accounts "do not explain why just these items are on the list or how and why these items are of differing value to different people".

Fourth, Hausman (2015) mentions the view that wellbeing consists in flourishing.[3] This view, also called 'developmentalism', maintains that mental as well as physical flourishing are essential for the wellbeing of a person. The problem with these accounts, as Hausman points out, is that physical and mental health appear as pre-conditions to an agent's flourishing. Thus, for health measurement, the notion of flourishing is underspecified. At this point, I might add that Hausman is very sympathetic to a flourishing view on wellbeing. Hausman argues in other places of his book that a notion of flourishing

[3] Whether developmentalist accounts are a distinctive group of theories or could be added to objective list theories is controversial. For the sake of my argument, I follow Hausman (2015) position and report his points here.

should underline the importance of health in society and therefore guide the distribution of resources in the health sector.

To conclude, I think it is vital to see that there exist plausible objections to all theories of wellbeing. Since I accept Hausman's (2015) normative position, I will not go in more detail on these points. Instead, I will now explain an alternative connection between preferences and wellbeing that Hausman identifies. Namely, that judgments or preferences are evidence for a person's wellbeing.

B. The case for individual judgments to provide truth conditions about wellbeing

The fact that there is no uncontroversial theory of wellbeing is not too problematic. As Hausman and McPherson (2009) argue, it is possible to take advantage of the close connection between desire satisfaction theories of wellbeing and wellbeing.

Hausman and McPherson (2009) argue that, individually, everyone has an information advantage over others when it comes to one's own wellbeing. Since subjective experiences and considerations are private and cannot be observed directly, the individual perspective is superior to any educated guesses that other persons might make. This is also the reason for the success of desire satisfaction theories of wellbeing. As Hausman and McPherson argue, it is no coincidence that individual desires and their satisfaction often coincides with wellbeing. Individuals know what is good for them. Thus, their judgments can be used to infer truth conditions about wellbeing. The authors write:

> "Legislators know less of Ann's circumstances than she knows, and they have a less tender concern for her wellbeing than Ann probably does. The judgments of legislators about how to make Ann better off are often likely to be worse than her own judgments. It is also safer to rely on people's preferences. The mistakes individuals make about their own good will be to some extent unsystematic, and legislators will not arrogate to themselves the power to substitute their judgment for people's own judgments" (Hausman and McPherson 2009, 16).

Based on this idea, that a third person knows less about one's wellbeing than one individually does, Hausman and McPherson (2009) maintain that individual judgments are a good source of information about one's wellbeing. But to be precise, Hausman and McPherson do not claim that an agent's judgments always coincide with what is good for that person. It is vital that these judgments are well informed, self-interested and a person also has to be a competent evaluator of one's wellbeing. However, once in place, these conditions make it safe to infer information about a person's wellbeing from their judgments.

The first two conditions, namely information and self-interest, are straightforward. Judgments based on false information are not a reliable guide to wellbeing. They might be, but mostly they are not. For example, a person not knowing that smoking is bad for her health might wrongly judge cigarettes to be good for her wellbeing. A conclusion that is simply wrong. Similarly, judgments need to be self-interested since the goal is to elicit judgments about an agent's own life. Individuals care about many things, but why following judgments regarding other persons should increase one's own wellbeing?[4] Finally, a person also needs to be a competent evaluator of one's wellbeing. This condition should be seen as usually being met. However, imagine an individual who, as we know, is a notorious manipulator. In that case, it is possible to infer that this person's judgments are not a good guide to her wellbeing. Similarly, a heroin addict might well have good information about the implications of his substance addiction and heroin and yet prefer another hit. In that case too, it seems legitimate to rule out the judgments of this person (Hausman 2012; 2015).

Once these three conditions are met, according to Hausman (2012), it is possible to infer information about wellbeing from a person's judgments. Note that what I did so far was not to present an argument in itself; however, I will accept this claim in the following. The reason is that this seems to be an uncontroversial statement which Hausman himself recognises. Moreover, is this position broadly accepted both in philosophy (cf. Barnes 2009) as well as in economics (cf. Samuelson and Nordhaus

[4] The question which judgments are about one's own life is a difficult one (cf. Parfit 1986). I am not going to discuss this issue and assume that it is clear which judgments are about one's own life and which are not.

2001; Bernheim 2016; Thaler and Sunstein 2008; Hausman and McPherson 2008). Usually, in economics, the reference to individual judgments is defended by the claim that a person's autonomy and freedom demands economists to respect the individual subjective perspective in addition to the above-introduced information argument (Bernheim 2016).

To conclude, I will take it for justified that individual judgments can provide information about one's own wellbeing. This does not imply that individual judgments are infallible, however, I take it to be the case that usually a person's judgments are reliable. This point, taken from Hausman (2012) and Hausman and McPherson (2009), is derived from the observation that all theories of wellbeing face some severe limitations. Thus, health policies cannot rely on an uncontroversial account which could guide the design of policies or allow to evaluate the outcome of the health care system. However, the authors also point out that given this lack of adequate theoretical foundations, individual judgments are a good source of information which can be used to infer information about wellbeing.

In the following section, I will introduce Hausman's (2015) argument why, in the case of HRQoL-measurement, the evidential view does not provide enough grounds to justify the reliance on individual judgments.

2. Hausman's Critique of HRQoL Measures

In this Section, I am going to address Hausman's (2015) critique of HRQoL measures relying on individual judgments. The reason for this critique, as opposed to Hausman's position in the evidential view, can be found in the way Hausman thinks about the elicitation of these judgments for health measurement. In the following I first, in Subsection A, explain Hausman's conditions on a person's judgments for HRQoL-measurement and show that partly these conditions are methodological and partly they are conceptual worries. Further, I distinguish between the methodological from the

conceptual worries and postpone the methodological discussion to Chapter III. Second, in Subsection B, I explain Hausman's conceptual doubts to rely on individual judgments in HRQoL-measurement.

A. Hausman's (2015) conditions on preferences to guide HRQoL-measurement

Since I discuss and defend the methodological dimension of HRQoL-measurement based on revealed preference theory in detail in Chapter III, I will here only shortly explain Hausman's (2012; 2015) position. In a nutshell, Hausman does not distinguish between preferences in a technical sense, which aim to measure individual judgments, and these preferences or judgments as such. Let me explain: So far, I used the terms preferences and judgments interchangeable in the sense of overall comparative evaluations of different health states. However, I bypassed the methodological question of constructing a numerical representation of these judgments, such as the QALY measure. To create such a measure, individual preferences need to fulfil several requirements. Hausman, by not making a distinction between preferences in a technical sense and individual judgments, assumes that individual judgments need to resemble these technical requirements. In Chapter III, however, I will argue that this is not the case and defend a different perspective on technical preferences. Nevertheless, from Hausman's position, all the methodological conditions that are needed to create a measure of HRQoL are requirements on a person's judgments.

Combining the methodological view with the normative conditions outlined in Section 1, Hausman (2015) establishes the following three conditions on preferences to guide HRQoL-measurement:

> "1. Self-interest. Jill [an agent] prefers x to y if and only if Jill believes that she is better off with x than with y.
>
> 2. Deliberative rationality. (a) Jill's preferences are complete and transitive, and (b) Jill's evaluation of x and y is not influenced by deliberative flaws or biases.
>
> 3. Complete knowledge. Jill has true beliefs about all the relevant properties and consequences of x and y" (Hausman 2015, 76-7).

These three conditions, self-interest, deliberative rationality and complete knowledge that Hausman (2015) identifies, are partly methodological and partly normative. In the following, I will shortly explain them and distinguish what is a normative perspective from what is a methodological condition on a person's judgments.

Condition (1.) requires that an agent's judgments are self-interested. This point is, as emphasised in Section 1, vital. A person's judgments need to be self-interested because individuals care about many things and it is not always clear how other-regarding preferences should bear on their wellbeing.

However, Hausman's (2015) conditions (2.) and (3.) make matters more complicated. Here both requirements of measurement and normatively justifiable conditions coincide. Let me start with point (2.). Hausman maintains that an agent's preferences have to be complete and transitive. Completeness means that every detail of a hypothetical state of the world is taken into consideration and rated adequately. Transitivity requires that all preferences are clearly defined in relation to one another. In terms of property, a transitive relation requires that if $(a>b)$ and $(b>c)$, then it must hold that $(a>c)$. For more details on preference measurement see Chapter III. Further, in Chapter III I will argue that completeness and transitivity should be understood as an 'as if' story rather than actual mental processes. I will emphasise that if an agent's responses are consistent, transitivity and completeness can be assumed to be in place (Okasha 2016).[5]

Moreover, Hausman's (2015) condition (2.) highlights that deliberative flaws and biases have to be taken into account. Framing effects of preference elicitation techniques can induce systematic mistakes in an agent's judgments. This point is crucial, and I agree with Hausman who argues that preference elicitation techniques such as proposed by the HUI-(3) or EQ-5Dneed to be more careful in terms of framing and the way they pose their questions. Note that I am not going to cover this point as these difficulties can be fixed easily. For more details compare Hausman's (2015, 84-103) Chapter 8.

[5] Note the subtle difference to Hausman's (2015) point. I do not require preferences to be transitive and complete. Instead, if an agent's responses are consistent, transitivity and completeness can be assumed to be in place as a mathematical property of representation of these judgments.

Furthermore, I suggest interpreting Hausman's (2015) condition (2.) as to resemble the 'competent evaluator' condition emphasised in Section 1. As highlighted, a person needs to be a competent evaluator of one's wellbeing to use their preferences as information for their wellbeing.

Hausman's (2015) condition (3.) emphasises that an agent has to have complete knowledge about all relevant consequences. This requirement too, is derived from not distinguishing between technical preferences as a representation of a person's judgments and these judgments as such. Shortly put, to create a numerical representation of preferences, it is assumed that an agent forms preference over all alternative states of the world taking everything that matters into account (Savage 1972). Note that by not making a distinction between preferences in a technical sense that represent a person's judgments and these judgments as such, Hausman provides a condition which, arguably, is hardly ever in place. But as I will show in Chapter III, an agent's technical preferences are simply a model for that person's judgments. Consequently, these judgments do not need to be complete in a technical sense. Now, of course, this does not mean that having more information should not be welcomed. I think that Hausman's condition (3.) can also be interpreted as seeing that correct information and more information are always better. And here I agree with Hausman. This was also a condition of the evidential view outlined in the previous Section.

In this Subsection, I introduced three conditions that Hausman's (2015) sets on preferences to be able to measure HRQoL: self-interest, deliberate rationality and complete knowledge. In the following, I will move on to Hausman's critique on relying on individual judgments for HRQoL-measurement.

B. Are individuals able to form judgments among different health states?

Hausman's (2015) critique against relying on individual judgments among different health states is primarily directed against the time trade-off questions employed by the EQ-5D. Remember, the EQ-5D is a measurement system of QALYs, created by the EuroQol Group (2015). However, I think that the point Hausman aims to make in his book is broader and directed against the general ability of individuals

to form meaningful judgments. Therefore, I will frame Hausman's point as well as my discussion in general terms and not solely focused on the EQ-5D.

Let me start by citing Hausman:

> "Even if time-tradeoff [sic] questions were answerable, what significance should health economists place on the off-the-cuff answers of those surveyed? The time-tradeoff [sic] questions asked in the survey are unfamiliar. It would be surprising if even a handful of people surveyed had ever before considered questions like these […] To state the obvious: These [time trade-offs] are hard questions to which people have no prepared answers. Only when people have thought seriously about them can they have settled preferences between 7 years in full health and 10 years in this specific diminished health state" (Hausman 2015, 87-8).

Hausman (2015) argues that individual judgments, given alternative health states, should not be given much weight. The reason for this is that individual judgments will almost certainly not fulfil the conditions outlined previously. But the problem is not merely a methodological one, also conceptual doubts on the chosen approach can be raised.

Consider first the methodological dimension. When Hausman (2015, 88) writes that people need to "have settled preferences" among alternative health states, he means that individual judgments need to be complete, transitive and based on full information. These are conditions that are generally difficult to obtain. Given the nature of health state evaluations, however, this is arguably an impossible task. Consider, for example, the question of whether one prefers to live ten years in a given health state, such as moderate problems with mobility, or seven years in full health. Is it possible to establish a complete and transitive ranking which takes into consideration every implication of the respective health states? To achieve this, you would have to know who takes care of you, your financial situation, what you would be able to do all day and so on. These are points that are impossible to evaluate in every detail. Therefore, Hausman concludes that individual judgments given alternative health states are not reliable. Since I will discuss the methodological

dimension of HRQoL-measurement in Chapter III, I will pause this discussion here. In a nutshell, I will argue that it suffices if an agent's responses are consistent to construct a HRQoL measure such as QALYs. Completeness, transitivity and full information can then be inferred as an 'as if' story that is in place.

However, the issue Hausman (2015) raises is not purely methodological. He also refers to the questions whether an agent's judgments, given alternative health states, are any meaningful. It is doubtful whether respondents have enough information and resources, in terms of time and mental capacity, to think about alternative health states and their consequences. Choosing whether one wants to live ten years with moderate problems of mobility or seven years in full health is a difficult choice. Also, if one's judgments do not need to be complete and transitive, answering this question requires considerable mental capacities: Different dimension of one's life need to be aggregated, compared and evaluated for an answer to be meaningful. Thus, how much weight should be given to these answers?

Moreover, Hausman (2015) points out that respondents might suffer from biases. Given the difficulty of these question, individuals could substitute the stated questions with more straightforward and accessible concepts and questions. For example, respondents might suffer from the so-called 'focusing illusion' (Schkade and Kahneman 1998) and solely focus on what they are not able to do, given a condition, and thus adjust their levels of wellbeing consequently, without considering activities they can engage in.

To conclude, in this Subsection I introduced the doubts Hausman (2015) raises concerning the ability of individuals to form judgments among health states. Partly, these worries are methodological. But partly, the issues go deeper and raise fundamental problems associated with HRQoL-measurement in terms of preferences. In the following, I will argue that it is worth to rely on individual judgments. This is, I argue, because problems Hausman identifies do not undermine the normative criterion which is based on the evidential view.

3. Why Individual Judgments Should be Normatively Respected

In this Section, I will defend the reference towards individual judgments to identify HRQoL against Hausman's (2015) critique. In the following, I will first highlight what I believe is the most vigorous defence of this point (Subsection A). Second, I will approach the same question from a different perspective. That is, I will highlight that even if one is sceptical about the ability of individuals to make such judgments, the burden of proof to do so will be on those who claim that the first-person perspective about health states is invalid (Subsection B).

A. Individual judgments as evaluations of health states

To see why I am sympathetic to the ability of individuals to form judgments amongst different health states consider that the goal of the entire enterprise is to measure HRQoL. Further, to measure wellbeing, Hausman (2012; 2015) concludes that individual judgments are the best measure for wellbeing currently available. What I need to address, though, is Hausman's claim that the evidential view does not apply in the case of HRQoL-measurement. Hence, that individual judgments among alternative health states are not meaningful.

I agree with Hausman (2015) that the ability of a respondent to deliberate and think about an answer should be welcomed. Similarly, also the provision of medical information about health states as well as insights on what it is like to live with certain health states is vital. But generally, I do think that agents intuitively know what is important for them and that they can form meaningful judgments among different health states. Consider, for instance, the following question that also Hausman (2015, 88) poses: "Would you prefer seven years in full health to ten years with moderate problems with mobility, usual activities, and pain/discomfort?"[6] As highlighted above, Hausman concludes that forming reliable judgments among these health states requires substantial cognitive efforts and the processing of

[6] Hausman (2015) points out that time trade-off questions are not specified enough. Hence, for example, it is not clear what it exactly means to have moderate problems with mobility. I agree with Hausman on this point; however, this issue can easily be fixed by specifying time trade-off questions. In the following I assume that these questions are adequately specified.

information about life in the respective health states, something that is highly challenging. Thus, he continues that it is reasonable to assume that respondents might not be able to adequately achieve this.[7] However, I disagree. I do think that individuals can form meaningful judgments among being healthy and having moderate issues with mobility. My intuition is that we know what things we care about in life, which activities are essential to us and what matters less. Given this knowledge, I maintain that a time trade-off between full health and moderate problems with mobility is answerable. I personally, for instance, love to read books and go to museums as well as concerts. Thus, I would intuitively put less emphasis on physical rather than mental impairments. Comparing this to my brother, who is passionate about being active and doing outdoor sports, I think he would have a different preference among these alternatives.

Even if my brother and I were not able to fully rank and assess all details of the alternative health states, these judgments would still be indicative for our respective HRQoL. The issue here is not, I believe, to set an ideal standard that actual measurement cannot achieve. Instead, the question is what kind of alternatives there are to identify a person's HRQoL. And given the problems with theories of wellbeing discussed in Section 1, I maintain that individual judgments are the best source of information currently available.

Let me counter two possible objections to this example. First, Hausman (2015) might argue that I suffer from a focusing illusion (Schkade and Kahneman 1998). Healthy people, like my brother or I, might solely focus on the activities and things that a disease makes impossible to do and ignore all the other activities which are still available. This might lead respondents to overestimate the impact of a disease. Note that the point I am making here is not that survey respondents can form unbiased judgments, but instead that they are able to form some judgments which are indicative for their HRQoL. A point which Hausman doubts.

[7] To clarify, Hausman (2015) acknowledges that it might be possible to resolve this issue through changes in survey design. But he concludes that reasonable doubts remain.

Second, Hausman (2015) might argue that it is essential that one understands what a health condition implies and that without this understanding, individual judgments do not say much. Moreover, the colloquial ideas I entertained in the example are not reflecting such an understanding. Let me say that I agree with such a characterisation and that having a good understanding of health states is vital to form reliable judgments. Therefore, I think that informing respondents and giving them time to deliberate is crucial to elicit meaningful judgments among health states. Even more, in Chapter IV, I will address the issue of preference change and the fact that healthy individuals put significantly different weights to health states than current patients do. In the light of this finding, I will argue that it is better to rely on individuals experiencing a health condition to elicit HRQoL values rather than asking members of the public at large. This is, I shall argue, because the experience of a health condition is epistemically essential to grasp what a condition implies (Paul 2014). However, let me clarify what my example is about. It was a response to Hausman's critique that individuals are not able to form meaningful judgments, which I disagree with. Moreover, the hypothetical objection raised here is concerned with whether individuals have enough information to form meaningful judgments. While these two points depend on one another, this objection only raises doubts on those respondents who don't have enough information to discern among alternative health states. Thus, the conclusion to this objection should not be to reject the ability of individuals to form judgments among health states, but to identify those individuals who have enough information to form meaningful judgments. For more detail compare Chapter IV.

Lastly, I think it is vital to understand what is at stake with Hausman's (2015) critique. He argues that it is reasonable to doubt whether individuals can form meaningful judgments among alternative health states. However, Section 1 of this Chapter emphasised that individuals know better what is good for them than anybody else does. Moreover, I highlighted here that the problem HRQoL measures face is not one of an idealised world where every detail is settled perfectly. Instead, I believe that health measurement has to deal with a messy reality and to work with the best alternative currently given: individual judgments. My claim is not that judgments are infallible and that everything is settled. Instead, I do think that individuals can make intuitive judgments and that these judgments can give

some indication about what is good for one and whatnot. Therefore, the question discussed here is whether Hausman's doubts are strong enough to justify rejecting the first-person perspective about wellbeing. I do not think so, and in the following, I will present an argument supporting this claim.

B. What is at stake if individual judgments are ignored?

Consider now Hausman's (2015) doubts whether individuals can discern among alternative health states from the opposite perspective. Saying, as Hausman does, that we should not rely on judgments to measure HRQoL is lastly an argument against relying on the first-person perspective. This is a strong statement, and in the following I will argue that more is needed to sustain this claim than simply to express some doubts about the ability of an individual to know precisely which consequences a health state involves. The following argument is borrowed from Barnes (2009) who discusses the importance of the first-person view and aims to set a high bar to override individual preferences.

My conclusion based on Hausman (Hausman and McPherson 2009; Hausman 2012) in Section 1 was that individuals know better what is good for themselves and what increases their wellbeing than anybody else might. Hausman sustained this point based on the insight that individual experiences, values and judgments are inherently private. Call this the INFORMATION principle:[8]

> (INFORMATION) Individual A has privileged access to what contributes to A's wellbeing.

INFORMATION, besides that Hausman and McPherson (2009) agree on it, it seems an uncontroversial statement. It highlights that an individual has privileged access to what is good for them, since A's experiences and values are inherently private. Nevertheless, if one accepts INFORMATION, the following principle is plausible too:

[8] Barnes (2009) uses the same principle as premise. But she formulates it slightly different: "(Evidence) Ceteris paribus, for any person, x, x is a good source of evidence about x's own wellbeing." (Barnes 2009, 9). Note that I was inspired by Barnes here, however, I also wanted to make the link to Hausman's (2012) evidential view clear. Thus, my different formulation of the principle.

> (T-EVIDENCE) Ceteris paribus, for any individual A, A's judgment is a good source of evidence about A's own wellbeing (Barnes 2009, 9).

T-EVIDENCE does not directly follow from INFORMATION, but it is reasonable to accept it. This is, because if one accepts that an individual has privileged access to what is good for oneself, then it is plausible to admit that a person's judgments are a good source of evidence (Barnes 2009). Note that T-EVIDENCE, does not imply that a person's judgments are always a good guide to their wellbeing. In particular, the judgments need to be concerned with one's own self-interest and have to be well informed. Moreover, an individual also has to be a good judge of their own wellbeing. Hence, A's judgments are not always a good source of evidence (Barnes 2009; Hausman 2012). Further, T-EVIDENCE does not state that other sources of evidence are inadmissible. For HRQoL-measurement, for instance, medical knowledge about diseases can be relevant too. However, T-EVIDENCE highlights that the individual perspective is vital. From T-EVIDENCE though, Barnes derives the following two principles:

> (ARBITRARY SOURCE) Ceteris paribus, for any two arbitrary individuals A and B, there is no reason to think that B is a good source of evidence about A's wellbeing (Barnes 2009, 9).

Furthermore, in a strengthened form:

> (ARBITRARY SOURCE*) Ceteris paribus, for any two arbitrary people A and B such that B is given basic information about A's circumstances, there is no reason to think that B is a good source of evidence about A's wellbeing (Barnes 2009, 10).

The strengthened form of this principle, ARBITRARY SOURCE*, allows to highlight that B's position of analysis and evidence to analyse A's wellbeing is, *ex-ante*, not tested. Thus, there is no evidence that B is capable of evaluating A's wellbeing, but of course, there might be. ARBITRARY SOURCE, in both forms, allows a further perspective on policymaking in health care. It states that an expert position that discerns among health states and that, even if well-intentioned, aims to increase wellbeing should be

treated with caution. The reason is, as Barnes (2009, 9) puts it: "there is no reason to think that B is a good source of evidence about A's wellbeing". Furthermore, from T-EVIDENCE and ARBITRARY SOURCE it follows that:

> (AUTHORITY) Ceteris paribus, for any two individuals A and B, A's testimony and judgments are preferable to B's testimony as a source of evidence about A's wellbeing (Barnes 2009, 10).

This argument seems straightforward. Starting from a principle which Hausman (2015) agrees on, namely, INFORMATION, and only changing it slightly, I arrived at AUTHORITY. This allows to state that ceteris paribus, A's testimony about her wellbeing should be preferred to another person's claim about A's wellbeing.

The intermediate step through ARBITRARY SOURCE, in both forms, allowed to introduce the relational perspective between judgments about one's own wellbeing and a second person (or institution) that is concerned with that person's wellbeing. It allows to highlight that the alternative to the first-person perspective is, *ex-ante*, not tested and should be seen with caution. This step further supports my claim in Subsection A which highlights the lack of alternatives for HRQoL measures. But let me return to the conclusion of Barnes (2009) argument, which is AUTHORITY.

Note the word 'preferred' in AUTHORITY. AUTHORITY does not state that one's individual perspective is always better or infallible as information about wellbeing; it merely states that the individual perspective should be preferred. Compare this now to Hausman's (2015) doubts that individuals are capable of answering time trade-off questions. As I already emphasised above, for the aim to measure HRQoL, and not having an uncontroversial theory of wellbeing, the first-person perspective is vital. AUTHORITY confirms this.

Where does all of this lead us when considering Hausman's (2015) argument? On the one hand, AUTHORITY states that, in principle, the first-person perspective should be preferred to the judgments

of another person or institution. On the other hand, Hausman doubts the ability of respondents to process all the relevant information needed to make meaningful judgments among alternative health states. Under Hausman's concept of preferences and his three conditions outlined in Section 2.A, this conclusion seems straightforward: Arguably, individuals cannot have full knowledge and do not rank all possible states of the world completely and transitively. Therefore, a generalisation of the claim that individual judgments among health states are not meaningful seems plausible. Nevertheless, as I will argue in Chapter III, Hausman's methodological conditions can be questioned.

But given that I postpone the methodological question to Chapter III, what remains of Hausman's (2015) claim is a doubt on the quality of individual judgments, not an argument that the first-person perspective (as established by AUTHORITY) does not matter. But then, it is legitimate to maintain that AUTHORITY is acceptable and individual judgments can be used for HRQoL-measurement. Hausman's claim only calls for caution when it comes to empirical implementation and a case by case judgment whether some individuals can form meaningful judgments. However, to show that individual judgments are *generally* invalid, the burden of proof would be with Hausman.

In this Section, I emphasised that the individual perspective should be valued. To achieve this, I first started by giving reasons to doubt Hausman's conclusion against individual judgments: It is plausible to maintain that individuals know better what is conducive for their own wellbeing and reasonable alternatives to measure wellbeing are missing. Second, and based on Barnes (2009), I argued that Hausman does not succeed in his critique against individual judgments. The reason for this is that Hausman's doubts are empirical worries against the AUTHORITY principle. Before concluding, let me shortly consider two objections that Hausman might raise against this argument.

4. A Hypothetical Response of Hausman

Having proposed an argument against Hausman's (2015) critique of relying on individual judgments for HRQoL-measurement, it is now time to consider some objections against this argument. Remember, the question this Chapter is concerned with is whether individuals can form meaningful judgments among alternative health states.

First, Hausman (2015) might argue that the methodological question of measuring individual judgments cannot be distinguished from the normative one about why judgments should be used. As outlined in Section 2, Hausman's requirements on a person's judgments are both derived from a normative as well as a methodological perspective. Here I disagree with Hausman but since I will discuss the methodological issue surrounding preference-based HRQoL-measurement in the following Chapter, I will postpone the discussion of this topic. However, there might exist a slightly different formulation of this critique too, namely that rationality as a concept proposed by rational choice theory is not solely a methodological tool but also a normative concept. Thus, to elicit meaningful preferences among health states, these preferences need to be complete, transitive and based on full information. Put differently, what HRQoL-measurement requires are rational judgments.

Now, while this is certainly a possibility and there might be a case in favour of rational judgments, I do not think that it is necessary to rely on rational judgments for HRQoL-measurement. On the one hand, Hausman defends the evidential view and the reference towards individual judgments not in terms of rationality but in terms of an information advantage individuals have. On the other hand, it is a legitimate position in economics and philosophy to understand rational choice theory as a methodological tool. For instance, Varian's (2014) "Intermediate Microeconomics" textbook, arguably one of the most commonly used, introduces utility functions as representations of an agent's preferences and stipulates it as a technical concept. In the following Chapter, I will introduce this perspective in more detail.

Second, and this is Hausman's (2015) claim two that I introduced in the introduction, Hausman argues that even if judgments were measurable and meaningful, it is not clear why relying on them is the best way to measure the value of health states. This is because individuals value health states in terms of what they can do and achieve in these health states. Therefore, identifying the underlying reasons for individual judgments might be better than to solely elicit individual judgments. Even though individual judgments represent what a decision-maker cares about, they also contain biases and mistakes of the respondents. Hausman writes:

> "Rather than leaving evaluation as a black box, assigning values to health states should be a matter of isolating the properties on which the values depend, specifying how the values of health states depend on them, and judging whether the values of health states should depend on the properties that people take them to depend on" (Hausman 2015, 102).

In response to this argument, I would like to state three things. First, let me clarify how I understand Hausman (2015) here. I interpret him as not rejecting the idea that health should be evaluated in terms of wellbeing. Instead, I understand Hausman in a way that the health states used to elicit preferences should represent what individuals actually care about rather than relying on the predefined dimensions of the EQ-5D or the HUI-(3). For example, consider the dimension 'mobility' and assume for a moment that all one respondent cares about in terms of mobility is her ability to go for walks. In that case, the respondent would evaluate trade-offs involving issues with mobility solely in terms of her expected impact on her ability to walk. But of course, doing so the respondent might make mistakes and responses suffer from noise and biases. Thus, to evaluate health states correctly, one dimension should be concerned with the respondent's ability to go for walks directly.

Second, however, if the conclusion of Hausman's (2015) claim indeed is to refine preference elicitation surveys through adding new dimensions, I would argue that health economists face a trade-off between accuracy and measurability. Remember, the HUI-(3), for instance, distinguishes between 972.000 different health states. And this by relying on eight dimensions. If there should remain a reasonable way

to measure these different health states, even more fine-grained measures make it more complicated. Therefore, I think that it has to be decided carefully whether new dimensions can indeed add something to these measurement systems or not.

Third, let me highlight that while I think that the above-mentioned trade-off between accuracy and measurability is important, this does not mean that there is no room for improvements. Actually, health economists are already working on this. As Nord (2017) writes, Hausman (2015) overstates this argument. Nord continues that preference-based HRQoL-measurement aims to understand the causes of choice. Nord quotes a study by Williams (1995) who combines the preferences elicited by the EQ-5D with a regression analysis to understand the differences in health evaluations individuals report.

To conclude this Section let me repeat what I argued for. First, regarding the objection that methodological and normative questions of HRQoL-measurement cannot be separated, I highlighted that I will discuss this issue in Chapter III. Regarding Hausman's (2015) argument that it would be better to measure what individual judgments depend on, rather than to elicit judgments among several pre-define health states I argued that a trade-off between accuracy and measurability exists. Furthermore, I emphasised that even though a careful analysis of which health states are important, and which not, can be welcomed, measurability concerns call for caution with regards to a too detailed measurement system.

5. Conclusion

In this Chapter, I defended HRQoL measures in their reliance on individual judgments from a normative perspective. By discussing Hausman's (2012) evidential view, I identified judgments to provide information about a person's wellbeing. The reason for this is, as Hausman argues, that all groups of theories of wellbeing face some reasonable objections and thus are not suited to guide health

evaluations. However, there is a basic truth about the fact that individuals know better what is good for them than anyone else. At least, as long as these individuals are well informed, self-interested and competent evaluators. Based on this condition, I then moved on to analyse Hausman's critique of judgments to provide information about HRQoL. I showed that this critique depends on both a normative and methodological discussion. Moreover, I argued that from a purely normative perspective, Hausman does not undermine the reference to individual judgments. This is because Hausman's doubts are empirical worries that he raises, and they do not undermine the basic idea of the AUTHORITY principle of individual judgments. Instead, I suggested that Hausman's doubts call for caution and a case by case analysis whether individual judgments can be used for HRQoL measurement. Finally, I rejected two objections to my argument. In the following Chapter, I will move on to discuss the methodological dimension of HRQoL-measurement.

III. Methodological Justification of Preference-Based HRQoL Measures

The aim of this Chapter is twofold. First, I will argue that preferences, in a methodological sense, can be distinguished from the normative question of why individual judgments should be used to measure HRQoL. Second, I will argue that the elicited preferences among health states can be understood as a representation of individual judgments among alternative health states. The way I achieve these two aims is by criticising Hausman's (2015) understanding of preferences.

Hausman (2000; 2011; 2012; 2015) analyses preferences as they appear in our everyday understanding as well as how they are used in economic decision theory. In our everyday understanding, when we say that a person prefers something, we typically refer to a desire or a judgment of a person in the sense of an overall comparative evaluation. Economic decision theory, also referred to as 'revealed preference theory' (RPT), understands preferences as hypotheses about an agent's choice behaviour. Hausman argues that RPT is wrong to maintain that preferences – as they fit in our everyday understanding – can be elicited by choice behaviour. Instead, Hausman points out that when economists apply RPT – that is, they use choices to elicit preferences – economists refer to the mental states that have let the agent to choose. This interpretation of preferences is called 'mentalism'. Hausman is a mentalist. He maintains that preferences in decision theory as well as in our ordinary understanding are the analogue of desires in a belief-desire model. The belief-desire model, also called folk psychology, explains individual actions by reference to two mental states, a person's desires or preferences and their beliefs. For example, my choice to have coffee in the morning could be explained by my preference to become awake and my belief that drinking coffee allows me to realise my preference. Understanding decision-theoretic preferences as an analogue to desires in folk psychology, Hausman maintains that psychological as well as neurological data are essential to improve and supplement RPT.

In this Chapter, I argue that Hausman's (2015) conception of preferences as they are understood by RPT (from now on I shall call these revealed preferences or in short RP) is not tenable and consequently

defend HRQoL-measurement. To achieve this, I will combine three arguments, by Guala (2019), Clarke (2016) and Thoma (2020b), and I will argue for the following three claims: (A) RP should not be understood as mental states but rather as an agent's dispositions to choose. Thus, RPs are simply a technical construct that economists use to formulate hypotheses about choices. (B) RP are a 'shorthand' for our common-sense understanding of preferences and, hence, can be used to say something about an agent's judgments. Furthermore, the shorthand story is defensible without reference to the problematic versions of functionalism or positivism Hausman criticises. (C) Eliciting RP from choices, i.e. applying RPT, is possible if the option set an agent chooses from is specified in accordance with an agent's beliefs. (A), (B) and (C) together defend both claims this Chapter makes. First, by defending the shorthand story, the preferences health economists elicit can be understood as a model of a person's judgments among different health states. This conclusion builds on the previous Chapter and defends HRQoL measures against Hausman's critique that individuals are not able to form judgments among health states. Second, (A), (B) and (C) also allow me to defend HRQoL-measurement against Hausman's third argument, namely that preferences, as they fit in RPT, are not able to adequately represent an agent's judgments among alterative health states.

This Chapter is organised as follows: In Section 1, I will discuss Hausman's (2000; 2011; 2012; 2015) arguments as well as link Hausman to the broader discussion about what preferences are. Section 2 reports Guala's (2019) argument in favour of claim (A) and Section 3 defends claims (B) and (C) based on Clarke (2016) and Thoma (2020b). In Section 4, I will give Hausman a comeback and discuss potential objections to my argument. Section 5 concludes.

1. Hausman on Preferences

Shortly put, Hausman's (2000; 2011; 2012; 2015) understanding of preferences is built on two arguments against RPT and a commitment to a mentalist interpretation of preferences. The two arguments are essentially a critique of the interpretation of the axioms of RPT. First, Hausman maintains

that economists are mistaken in reducing preferences to choices. This because preferences and beliefs together determine choices. Second, Hausman also criticises two methodological arguments frequently employed to shield RPT from criticism of psychology and the neurosciences. This discussion is mainly about which types of evidence are admissible to judge economic models. These two arguments, in combination with a commitment to a mentalist interpretation of preferences,[9] lead Hausman to argue that preferences are total subjective comparative evaluations.

I will first present Hausman's (2015) position in detail and then move on to discuss the broader camp of mentalist interpretations of preferences.

A. Preferences and beliefs together determine choices

In this Subsection, I will discuss Hausman's (2000; 2012) argument that preferences alone do not determine choices. Hausman's argument is usually coupled with a commitment to understand preferences as mental states. The reason why I discuss these points separately is twofold. First, Hausman makes an implicit step from highlighting that mental states matter to saying that preferences are mental states. Second, in the literature on preferences this distinction has been made too; for instance, Guala (2019) rejects that preferences are mental states but still accepts Hausman's argument that beliefs in addition to preferences matter in decision situations. Similarly, also Thoma (2020a; 2020b) makes this point.

Hausman's (2000) argument is that economists have misinterpreted the axioms of RPT. Thus, I will firstly introduce the core principles of these axioms and secondly explain Hausman's assessment thereof.

[9] A different interpretation of mentalism is possible too: functionalism. I will comment on this position in Subsection D.

Shortly put, preferences over alternative states of the world are the core ingredient of decision theory. A decision-making agent is modelled as having a set of alternative states of the world at their disposal. These alternatives represent all that matters to the decision-maker and the agent forms preferences over these alternatives as tuple comparisons. The goal of decision theory is to represent this preference relation as a function which numerically describes the preference order. This function is what economists usually call the 'utility function' (Bradley 2018; Savage 1972).

The so-called 'weak axiom of revealed preference theory' (WARP) is one of the core results of decision theory. It states that if an agent's preference relation is complete and transitive, it can be represented as an ordered set that represents this agent's preferences. Completeness means that every relevant alternative is ranked. The transitivity condition guarantees that the preference relation is consistent. Assume, for instance, that an agent can choose between three alternatives, *x*, *y*, and *z*. If the agent ranks $(x>y)$ and $(y>z)$ transitivity requires that $(x>z)$ holds too (Hausman 2000; Sen 1971).

In case of uncertainty or ambiguity, it is considerably more complicated to identify a utility function from an agent's preferences. Von Neuman and Morgenstern (1944) and Savage (1972) offer, respectively, solutions for these two cases. But since Hausman's argument is concerned with the WARP and its interpretation, it suffices to say, that in addition to a decision-maker's set of alternatives, also the likelihood for these alternatives to occur has to be accounted for. While this is significantly more complicated from a mathematical perspective, the conceptual idea remains the same: A decision-maker forms preferences over alternative states of the world. By representing these preferences with a utility function, all that matters to an agent is represented numerically.

Note, what I did so far was to simply describe the basic ideas of decision theory and the WARP. I did not discuss how these preferences can be identified. And this is exactly the point where Hausman's (2000; 2012) argument becomes relevant. Hausman argues that proponents of RPT are not mistaken in their technical results but they are wrong to say that preferences can be elicited from an agent's choices. Before coming to Hausman's critique, let me clarify what RPT exactly entails.

First, the standard interpretation of the WARP maintains that the set of alternatives at the decision-makers disposal is the set of options that characterise a choice situation. Moreover, it is assumed that the preference relation over these alternatives can be inferred from choices (Hausman 2000). Let me add for clarity that, whenever I talk of RPT, I refer to the WARP and this interpretation thereof. The HUI-(3) and the EQ-5D, the two health measurement systems I introduced in Chapter I, build on RPT too. They aim to identify an agent's judgments among alternative health states by offering them hypothetical choices. For instance, time trade-off questionnaires give respondents the possibility to choose between a given health state for x years or full health for y years (with x>y).

Second, to elicit these preferences, RPT just requires consistent choices. If this is the case, an agent's preferences can be represented by a utility function such as QALYs. So, if a respondent answers several time trade-off questions or standard gambles among alternative health states, and if these answers are consistent, it is possible to represent these answers in a QALY-function. This function then allows to make inferences and predictions about future choices given (alternative) circumstances. Talk about maximising behaviour simply means that an agent's choices are consistent (Hausman 2012; Clarke 2016; Guala 2019; Vredenburgh 2020).

Third, RPT has also implications for normative decision theory. As Okasha (2016) points out, the entire understanding of rationality is an 'as if' story. Rationality does not mean that an agent ought to adhere to the WARP. Rather it means that if an agent chooses consistently, their behaviour can be characterised as rational. This point is important as it builds on one hypothetical objection of Hausman (2015) I discussed in the previous Chapter. Rationality is not an actual requirement, according to RPT. However, if all that remains is the necessity of consistency to build a representation of individual judgments,[10] a

[10] Consistent choices imply transitivity and completeness. However, this does not mean that an agent actually thinks of their judgments in this way or aims fulfil these conditions. For example, imagine an agent, Ann, who chooses to have a coffee whenever tea and water are available. Further on occasions where Ann can choose between tea and water, she chooses tea. Based on Ann's consistent choices we can infer that her preference ordering is 'coffee>tea', 'tea>water' and 'coffee>water', which is complete and transitive. However, following RPT it is not necessary to claim that Ann actually ranks her option this way. Instead, it suffices that Ann has an

different problem emerges. In the previous Chapter, I defended the reference to individual judgments from a normative perspective; however, consistency in these judgments was never a condition. So, on what grounds can inconsistent judgments be ruled out?

Let me say that this is a problem from a conceptual perspective. However, empirically inconsistent choices are not a significant challenge. As Badia et al. (1999) show by comparing different preference elicitation methods to assign values to health states, the number of inconsistent evaluations is low. Further, their study found that older and less educated persons have a significantly higher number of inconsistent answers. Building on these findings, their recommendation is to invest in interviewers who can support the respondents in giving less inconsistent answers through explaining the tasks better and offering example surveys to practise. Further, Badia et al. point out that inconsistencies can be reduced by making respondents aware of their answers and giving them a chance to re-evaluate them. Given these findings, I take the problem of inconsistent answers to be manageable.

Let me return to Hausman (2000; 2012) and his critique of RPT. First, Hausman emphasises that there is nothing inherent to the mathematical results of the WARP that it can be interpreted as explained. Hausman writes:

> "The theorem [WARP] does not prove anything about how its functions and relations should be interpreted, and it does not establish that R [that is, the preference relation over alternatives] coincides with or could replace the notion of preferences that economists employ" (Hausman 2012, 26).

Based on this claim, Hausman (2000; 2012) then moves on to his second point. Namely, that choices alone cannot reveal preferences. This, because mental states such as beliefs in addition to preferences determine which option an agent chooses. Note, for Hausman also preferences are mental states, but more on this in Subsection C.

overall judgment where she prefers coffee over the other two options and tea over water to represent her preferences as adhering to the WARP.

Choices can depend on mental states in addition to preferences in a multitude of ways. Hausman (2000) points out that an agent might hold mistaken beliefs about alternatives and therefore choose against his preferences. Moreover, an agent might not have enough time to form an opinion over the available alternatives or choices might simply be based on heuristics. All these factors undermine in Hausman's opinion the possibility that preferences can be reduced to choices.

Consider Ann for instance.[11] Ann has a strong preference for chocolate ice-cream but unfortunately, she is allergic to milk. Therefore, whenever Ann cannot have a vegan chocolate ice-cream, she chooses to have a Coke. Ann's 'true' preferences could be characterised as follows: 'vegan chocolate ice-cream> Cola' and 'Cola> all other flavours of vegan ice-cream'.[12] Usually, Ann meets with her friends at a place called 'Gelateria Marlù' and while her friends have ice-cream, Ann always orders a Cola. However, Ann does not know that at 'Marlù' they sell vegan chocolate ice-cream too. Therefore, an economist observing Ann's choices is not able to identify her true preferences. Instead, applying RPT, the economist observes Ann's revealed preference as 'Cola> ice-cream' (both vegan and with milk). But this choice is, as highlighted above, based on a false belief. Consequently, Hausman (2012) concludes that preferences cannot be observed from choices alone.

The bottom line of this argument is that the technical results of the WARP do not imply that preferences can be inferred from choices. Moreover, Hausman (2000) argues that mental states such as beliefs determine choices together with preferences.

The claim that preferences cannot be reduced to choices because mental states play a crucial role in choice behaviour sparked a debate about the right meaning of RPT. In what follows, I am going to discuss two arguments that try to shield decision theory from the critique that mental states play a crucial

[11] The structure of this example is borrowed from Hausman (2012).

[12] For convenience reasons I use this terminology. However, to be precise I would have to rank all alternatives pairwise. For brevity sake I will not do this; but remember this is just a convenience (also in the following).

role in decision-making. These arguments aim to protect decision theory from criticism of other sciences such as psychology and neuroscience and to defend the application of RPT.

B. Hausman on the Methodology of RPT

In this Subsection, I aim to identify Hausman's methodological commitments concerning RPT. Hausman's critique is mostly implicit in his work but in an essay directed against Gul and Pesendorfer's (2011) "The case for mindless economics" Hausman (2011) makes it explicit how he thinks about two arguments regularly employed in defence of RPT. The first argument originated by Samuelson and, in the spirit of critical positivism of that time, reduces models to their observable predictions. Following Hausman, I will call this the 'Samuelson argument'. The second argument is a defence of RPT in the spirit of Friedman's (1953) instrumentalism. Shortly put, instrumentalism is the view that it does not matter how realistic or 'true' certain assumptions of a model are. The only thing that counts is the quality of the predictions a model offers. Both of these arguments try to shield RPT from psychological and neurological critique. In this Section, I consider how Hausman engages with both of these arguments in turn.

The 'Samuelson argument' can be stated as follows: (i) The implications that matter for economic models are choices and consequences from choices, such as quantities and prices. (ii) The content of models consists only in their significant implications, nothing else. (iii) To reject or accept models, only data concerning the content of these models are admissible. (iv) From (i) and (ii) it follows that the content of economic models is choices and implications of choices. (Conclusion) It follows that for economic models only data about an agent's choices or data about the consequences of these choices (quantities and prices) is admissible (Hausman 2011, 129).

Hausman (2011) argues against this. His point is directed against claim (ii), the anti-theoretical stance this line of defence of RPT takes. Hausman argues that even if one would accept that all that proponents of RPT would care about are predictions of choice behaviour, these predictions are still guided by theoretical entities. Thus, theoretical entities are essential to improve the understanding of the world.

This because theoretical entities demand explanation which in turn can further the theory again. Either by rejecting wrong concepts or by improving true concepts. These improvements of theory also increase the quality of empirical predictions.

In this vein, Hausman (2011) contends that psychological and neurological findings can help to improve the scientific understanding of decision-making. Because if theoretical entities which engage with human decision-making matter, these entities should not be alien to neurological and psychological data. The reason is that this data would offer good chances to improve economic models of decision-making as well as predictions of choice patterns. Thus, Hausman argues, defending RPT by reducing economic theory to choices does not shield it from a psychological critique.

The second argument in favour of RPT that Hausman (2011) criticises, roughly proceeds along the lines of Friedman's (1953) instrumentalism. This argument is directed against the critique of economic models as not being realistic enough or as not correctly resembling how actual decision-making works.

The 'Friedman argument' goes as follows: (i) The aim of constructing models is to make correct predictions concerning the class of phenomena the model tries to predict or understand. (ii) Economic models aim to predict and understand choices and consequences from choices, such as quantities and prices. (iii) From (i) it follows that the only data that is relevant to judge economic models is based on the class of phenomena the models try to understand and predict. (Conclusion) Based on (ii) and (iii) it follows that only choice data and data concerning the consequences of choices are admissible to judge economic models (Hausman 2011, 141).

Hausman (2011) argues that this argument is invalid because (iii) does not follow from (i). Hausman points out that even if one would grant that economic models are about choice phenomena and that the only implications economists care about are predictions about choice phenomena, this does not mean that other evidence might not be useful. Even if choice data is relevant and used to predict models, nothing in this argument says that psychological evidence cannot improve the predictions. To see this,

Hausman (2011, 141-2) gives the example of a car. Arguably, all one needs from a car is to drive on roads. Nonetheless, to predict how well the car performs, a mechanic will look at the engine, consider how much fuel the car needs for 100km as well as a series of other indicators. What this example says, is that to predict decision-making it does not suffice to simply look at past choices. On the contrary, to predict how someone might choose, learning from psychological and neurobiological evidence can improve these predictions quite a lot.

Concluding, let me highlight the importance of this Subsection. Besides the fact that Hausman (2011) forcefully points out that both arguments are invalid to defend RPT, it is vital to understand the weight Hausman gives to evidence from psychology and the neurosciences. Hausman, in rejecting the two arguments emphasises the importance of a broader evidence base for RPT. This point is usually implicit in Hausman's (2000; 2012) work as he simply argues that preferences are mental states and that consequently, psychological data is conducive to improve RPT. However, in Subsection A I pointed out that Hausman's argument concerning the role of mental states in choice behaviour and the understanding of RPs as mental states are two different points. Thus, the arguments presented in this Subsection show that rejecting that preferences are mental states, as I do in Section 2, will not suffice to defend RPT and settle the question what role evidence from psychology and the neurosciences should play in RPT.

C. Folk psychology and preferences as total subjective comparative evaluations

In addition to the arguments presented in Subsections A and B, Hausman (2000; 2012) also commits to an understanding of preferences as mental states. This commitment has a long tradition in philosophical decision theory and is based on an understanding of decision theory as a scientific version of 'folk psychology' (Thoma 2020a). In this Section, I first introduce the 'folk psychology' model and then move on to Hausman's understanding of preferences.

Folk psychology offers a rationalisation of choice behaviour. Essentially, folk psychology is a concept employed by every one of us to understand human decision-making. If you ask, for instance, why Ann

had a Coke, her friends might say that Ann wanted to have something sweet and believed that chocolate ice-cream would harm her due to her lactose intolerance. As this case shows, folk psychology explains Ann's behaviour by reference to two mental states: Ann's desire or preference to have something sweet and Ann's belief that chocolate ice-cream contains milk. The reference to these mental states makes clear why folk psychology is so powerful: It offers someone taking a third-person perspective a simple tool to explain choices. The model causally connects a decision-maker's mental states with their action (Davidson 1974; Hausman 2012).

Taking decision-theoretic preferences as the counterpart of desires in folk psychology is an idea that has a long-standing tradition in the philosophical debate about preferences. Consequently, do the (subjective) probabilities associated with the option set, form the counterpart of folk psychological beliefs (Thoma 2020a). Hausman is no exception here. He essentially takes preferences to be mental states too.

Having clarified Hausman's (2000; 2012) critique of RPT as well as what the folk psychology model entails, I am now in the position to describe Hausman's take on RPs. Leaving the methodological claims introduced in Subsection B aside for a moment, Hausman claims that preferences cannot be reduced to choices because choices are based on both beliefs and preferences together. In addition to this, Hausman maintains a folk psychological model of decision-making which boils down to the claim that choices are explainable by conative mental states. Thus, Hausman concludes that preferences elicited from the choices of an agent are essentially the mental states which caused the agent to make that decision.

In addition to this 'mental' perspective on preferences, Hausman (2000; 2012) also needs a concept of preferences in line with the WARP. Note, this is because Hausman aims to understand what economists are doing when they apply RPT. Remember, RPs are tuple comparisons of alternatives which are complete and transitive. Let me quote Hausman on this point:

> "Given the axioms of ordinal utility theory, preferences entail a complete and transitive ranking that determines choices when combined with beliefs and

> constraints. Because this ranking determines choices, it must be a total ranking, incorporating every factor agents take to influence their choices. As economists understand preferences, nothing competes with preferences in determining choices. Once beliefs and constraints are given, preferences are determinative. […] The interpretation of preference that fits the bill takes them to be total subjective comparative evaluations" (Hausman 2012, 34).

Understanding RPs as a total subjective comparative evaluation is a demanding concept for a decision-maker to fulfil. Consistency and transitivity have to be taken as cognitive processes which demand considerable energy (Thoma 2020a). Moreover, for these preferences to be meaningful for economic analysis, also mistaken beliefs and other cognitive shortcomings have to be excluded (Hausman 2012). Hausman acknowledges these difficulties implied by a mental understanding of preferences. This is why Hausman also commits to a rather pessimistic outlook on the success of RPT.

To illustrate Hausman's understanding of preferences with an example, consider Ann again. This time, Ann meets her friends at a different place, called 'Café Rauchenbichler'. And, at Rauchenbichler they do not sell vegan chocolate ice-cream. Something Ann is aware of. Therefore, Ann orders a Coke. Let's assume that this decision is made consciously without any cognitive bias playing a role. If a revealed preference theorist observes Ann's choice, according to Hausman this theorist would have to commit to the following interpretation: Ann is perfectly aware of all options available at Rauchenbichler. Further, Ann compares all these options pairwise and ranks them in a cognitive effort concluding that a Cola is the best alternative.

Hausman (2012) is aware that actual human decision does not work like this. He also grants that preferences that are elicited based on heuristic decisions, rather than conscious deliberation, can still be used. At least, as long as they are in principle correct and not based on wrong beliefs or mistakes of the decision-maker.

Hausman's (2011) rejection of the revealed preference methodology in Subsection B. was combined with a commitment to understand the cognitive processes of decision-making in detail. Hausman seems to welcome detailed accounts of how individual reasoning and decision-making works to improve economic models. But how this would work in detail is a different question which I am not going to address because, ultimately, I will reject Hausman's (2000; 2012; 2015) interpretation of preferences.

I can conclude by stating the following. Hausman (2000; 2012) understands preferences as conative mental states. According to Hausman, RPT, by eliciting preferences from choices, commits to an interpretation of preferences as total subjective comparative evaluation. This is quite a different interpretation of RPT than the standard interpretation that I introduced at the beginning of this Section which understands RPs as a representation of an agent's judgments. And in fact, I will argue that Hausman is wrong to conclude so. By combining three arguments, I will first highlight that preferences should not be interpreted as mental states (Guala 2019). Then, moving on, I will introduce the 'shorthand story' which maintains that it is methodologically acceptable to say that RPT takes preferences to be a technical concept in line with the standard interpretation of the WARP; and still to hold that these preferences can say something about our common-sense preferences or judgments (Clarke 2016). Finally, I will counter Hausman's argument that RPs cannot be elicited through choices because mental states play a role (Thoma 2020b). While I agree with Hausman that beliefs play a role, specifying the option set in accordance with beliefs allows to reduce preferences of RPT to choices. It is the combination of these three arguments together, I maintain, that allows to counter Hausman's understanding of preferences and to maintain that RPs are an adequate representation of a person's judgments among different health states.

D. Mentalism in decision theory: a short overview

Before moving on to present my argument, I will comment on the line of defence of RPT I am going to take in this Chapter as opposed to alternative routes. Thus, I will first shortly clarify the debate Hausman's (2000; 2011; 2012) arguments are concerned with and then also introduce an alternative defence of RPT I did not choose to pursue.

The debate on preferences Hausman (2000; 2011; 2012) engages in is, roughly speaking, one between economists that aim to defend their application of RPT against philosophers who are critical of this practise. The labels 'behaviourists' and 'mentalists' are used to refer to these two camps respectively. Generally speaking, one can attribute to behaviourists the position that preferences are choices and that all that matters for economic models is choice data. Mentalists, on the other hand, could be described as maintaining that preferences are mental states and thus that evidence about mental states is vital to improve economic models. Caplin and Schotter's (2011) anthology gives a comprehensive overview of this debate. Needless to say, Hausman is a prominent proponent of the mentalist camp of preference.

However, the distinction between mentalism and behaviourism has recently gone under scrutiny (cf. Dietrich and List 2016; Grayot 2019; Guala 2019; Okasha 2016). In particular, doubts about scientific advancements of taking either of these positions were raised. Grayot (2019), for instance, argues that the aims of economists when referring to the choice theoretic foundations of decision theory are quite different from the aims of philosophers talking about preferences as mental states.

Taking Grayot's (2019) point seriously I can add a dimension to the previously described arguments of Hausman. Namely that mentalists, such as Hausman, hope that decision theory allows them to improve the understanding of human decision-making. It is this commitment to which their references to folk psychology and mental states essentially boils down to (Thoma 2020a). Proponents of RPT, on the other hand, are interested in preferences as a means to understand and predict choices. Taking reference to the arguments in Subsection B, Hausman's (2011) enthusiasm for a broader evidence base and to include psychological and neuroscientific data can be understood in a different light. Namely, it is based on the goal of understanding human decision-making that Hausman ascribes to decision theory and that is distinct from the one proponents of a more behaviourist interpretation, such as Gul and Pesendorfer (2011), have in mind.

And to make this clear, also in the following Sections I propose arguments which ascribe to decision theory a different aim – the aim to understand and predict choices – than the one Hausman (2000; 2012) has in mind – which is, to improve the understanding of human decision-making. This different aim of decision theory will allow for a more nuanced treatment of evidence from psychology and the neurosciences as I shall emphasise in the following Section. Moreover, allows this change in perspective to go beyond the mentalism/behaviourism dichotomy Hausman originally engaged in.

Before moving on, let me add that there exists an alternative route to defend RPT: functionalism. Proponents of functionalism, such as Dietrich and List (2016), think of preferences as being mental states simply in virtue of them causing an action. With regards to RPT, they maintain that preferences are a higher-level explanation that can be used without reference to this mental process. Thus, functionalism is seen by many as an interesting 'middle ground' which would allow revealed preference theorists to continue in their practice but still maintaining that what causes someone to choose a certain alternative is a mental state. The reason why I do not take this route to defend RPT is twofold. On the one hand, understanding RPT as a model which represents individual judgments (as overall comparative evaluations) among health states seems to be closer to the way health economics use preferences and think of their measurement systems. On the other hand, functionalism too is a highly controversial position which has been forcefully criticised recently (Thoma 2020a; Guala 2019). For brevity sake, I will shortly comment only on the first point.

Let me repeat what is the question: As Hausman (2015) writes, HRQoL is defined in terms of preference over alternative health states and these preferences, in turn, are elicited through choices. In the absence of further conceptual clarity of health economists, besides the WARP and its standard interpretation, Hausman proposed his understanding of preferences as a total subjective comparative evaluation. However, given that I disagree with Hausman on what preferences are, a different interpretation of preferences is needed. And I think that RPT as a theory about choice data comes closest to the economic practice. First of all, this is because Samuelson's impact on the development of RPT cannot be overestimated, as Backhouse (2017) writes. Thus, Samuelson's understanding of preferences as

hypotheses about choices, which I introduced in Subsection B, is highly important for the economic profession. Similarly, do economic textbooks such as Varian (2014), Mankiw (2009) or Osborn and Rubinstein (2020) introduce utility functions as representations of individual tastes or judgments. Finally, also health economists themselves understand RPT not as an actual resemblance of decision-making but rather as a representation thereof (Torrance, Furlong, and Feeny 2002). In a nutshell, functionalism as a philosophical position is not playing a significant role in economic thinking about what preferences and utility functions are.

To conclude, in the following I will defend RPT against Hausman's (2015) critique. The way I will do so is by interpreting preferences as a representation of individual judgments. Defending this claim will allow two conclusions. First, it concludes the argument presented in the previous Chapter, that the normative and the methodological dimension can be distinguished and hence that individual judgments can be used to evaluate alternative health states. Second, this argument will show that RPs can represent individual judgments.

2. Why Preferences are not Mental States

In this Section, I will report Guala's (2019) argument why preferences[13] should not be interpreted as mental states. This allows me to distinguish Hausman's two arguments against RPT from his interpretation of preferences as mental states.

Guala (2019, 1) claims that "preferences are belief-dependent dispositions with a multiply realizable causal basis". This understanding of preferences cuts through the mentalism/behaviourism dichotomy in economics. Guala accepts Hausman's (2000) argument that beliefs in addition to preferences determine choices and thus that preferences cannot be reduced to them. At the same time, however,

[13] I use the term preferences to refer to decision theoretic preferences which represent a person's judgments. Note that the term RP is not suited since Guala (2019) does not defend RPT.

does Guala reject an interpretation of preferences as mental states. This because he highlights the 'multiple realizability' of preferences which extends the scope of decision theory beyond human decision-making. Hence, reducing preferences to mental states would miss the point of decision theory.

Since Guala's (2019) point that preferences cannot be reduced to choices because beliefs determine choices in addition to preferences is essentially the same conclusion that Hausman (2000) reaches, I will not discuss this argument. Instead, I will get right into Guala's claim that preferences should not be interpreted as mental states. Guala sustains this claim by two arguments. First, Guala introduces a distinction between the different aim of RPT as science and what mentalists take to be decision theory. Based on this distinction Guala shows that decision theory on the one hand and psychology as well as the cognitive sciences, on the other hand, operate at different levels of explanation. Second, Guala justifies the distinction of different levels of explanation between preferences and the aim to understand human decision-making by emphasising the multiply realizability of preferences. Based on this argument, Guala makes clear that psychological and neurological explanations cannot offer causal explanations in all domains where decision theory is applied.

Let me start with the first argument Guala (2019) puts forth, namely that preference-based explanations operate on a different level than explanations of choice behaviour do. To see this point, let me elaborate on how preference-based explanations work. According to Guala, preferences are explanatory relevant to understand choices:

> "They [preferences] tell us that A (an agent with certain preferences and beliefs) does B (engages in a certain behaviour) in C (a set of circumstances), without saying exactly how B and C are causally related. [...] I will say that when a system A has a set of causal properties such that, when circumstances C occur, A does B, then A has a disposition to do B (in C)" (Guala 2019, 8).

This quote shows that Guala (2019) understands preferences as dispositions which allow to explain behaviour. Preferences are what connect the context, C, with the behaviour, B. The causal basis for this disposition is bracketed, i.e. "C [+ causal basis] → B" (Guala 2019, 9). Bracketing the causal basis and

saying that preferences are a higher-level explanation, which connect the context with behaviour, allows for greater generalisability. This is why preferences are multiply realisable. They can represent an agent's disposition to choose among a series of different psychological representations.

Consider Ann again and her preference for Cola over non-vegan ice cream.[14] Ann developed her lactose intolerance relatively late in her life. The reason for this is that Ann never really enjoyed milk products except ice-cream. So only one day, surprisingly, Ann developed an allergic reaction to the milk in the ice-cream. Since then, Ann had still a series of occasions to choose (non-vegan) ice-cream but she always decided to have a Cola instead. Hence, we might maintain that Ann has the following preference: whenever Ann is in a context where she as can choose between ice-cream and Cola, she chooses Cola. But the reason for the choice, the causal basis, is quite different in all these occasions. On the first occasion, Ann's stomach rebelled when she saw the different flavours of ice-cream. Thus, she decided out of that feeling that she could not have a product containing milk. The second time, Ann solely remembered the allergic reaction to milk and out of caution she deliberatively chooses not to have an ice-cream. On the third occasion, however, Ann had simply developed a habit not to eat ice-cream anymore and to choose a Coke instead. Now despite these three different causal mechanisms leading Ann to choose Cola over ice-cream, it is still possible to characterise Ann's reference as 'Cola> ice-cream'.

Consider now the mentalist project which maintains that preferences are mental states (Hausman 2000; Hausman 2012). On that understanding, it would be best to replace preferences, wherever possible, with detailed cognitive mechanisms explaining how an agent chooses. But then, Ann's decision to have a Cola would call for a different explanation on all three occasions. Guala (2019) explains the difference in his approach to a mentalist one by highlighting that for him preferences constitute the explanans. That means that preferences are what explain choices. On a mentalist understanding, however, preferences are the explanandum, i.e. what has to be explained. Therefore, these are two different projects and, according to Guala, it is not increasing the understanding of decision theory or human

[14] The structure of this example is borrowed from Guala (2019).

decision-making if one insists that preference-based explanations are mistaken because they do not resemble actual decision-making.

Note that bracketing the causal basis in preference-based explanations does not mean that evidence from psychology and the neurosciences is inadmissible. On the contrary, Guala (2019) highlights that his model of preference-based explanations needs stable preferences. Otherwise, preference-based explanations would not be very helpful. Thus, improving the understanding of the causal mechanism might increase stability. Through a detailed understanding of how decision-making works, scientists can make considerable improvements in the application of decision theory. But that does not mean that there do not exist different levels of explanation. Decision theory is concerned with one level, psychology and neurosciences with another one.

To see an example of a fruitful combination between preference-based explanations and psychological evidence, Guala (2019) refers to Kahneman and Tversky's (1979; 1992) 'prospect theory'. Shortly put, Kahneman and Tversky distinguish between the domain of gains and losses in a decision-maker's utility function. Irrespectively of the good a decision-maker is concerned with; the authors argue that individuals react more strongly in the domain of losses than they do concerning gains. That is, a decision-maker places more disutility in a loss, than a gain of the same magnitude would increase utility. This leads to a specific shape of the utility function, as Figure 1 represents.

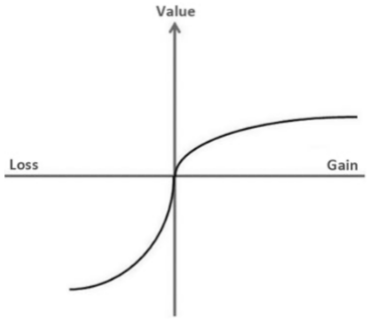

Figure 1: Utility in Prospect Theory (Guala 2019, 10).

What is important concerning prospect theory is the role of the psychological explanation. As Guala (2019) points out, it is not the causal mechanism of why individuals act in a certain way which is given the main stage. Instead, use Kahneman and Tversky their psychological insights into human decision-making to calibrate the utility function and to improve the predictive power of decision theory and preferences.

Guala (2019, 14) justifies this distinction between different levels of explanation by pointing out that decision theory is successfully applied in domains where the casual basis is different than psychological or neurological. In economic theory, for example, household behaviour is predicted by utility functions. This is done without reducing the aggregated preferences of a household to the preferences and mental states of the individual members of that household. Moreover, preference-based explanations also find application in biology or studies of institutional decision-making. Thus, Guala maintains that preferences are something different than human mental states and reducing preferences to mental states is not conducive.

Taking stock, Guala (2019, 1) maintains that "preferences are belief-dependent dispositions with a multiply realizable causal basis". Guala's argument against a mental understanding of preferences can be taken as proposing a division of labour. Preference-based explanations are on a higher level and have a different goal than what proponents of a mentalist interpretation suggest. Yet this does not mean that psychological and neurological data are inadmissible to assess or improve economic models. On the contrary, understanding the causal mechanisms which form human preferences can improve decision theory. But and this is the central claim of this Section, a mental interpretation of preferences fails since preferences are multiply realisable.[15]

It is important to see, that Guala (2019) does not defend RPT. He maintains that preferences cannot be reduced to choices because mental states play an important role. Thus, Hausman might respond to Guala that whether or not one maintains that the goal of decision theory is to explain choices through

[15] Again, here I do not refer to functionalism.

preferences, one cannot proceed with the application of RPT in human decision-making without accounting for mental states. Thus, information about mental states – which is provided by psychology and neurosciences – is essential.

Yet Guala's (2019) argument makes a first step towards my defence of RPT. I take Guala's point, namely that preferences in decision theory should not be seen as mental states in the sense Hausman takes them to be, as the first premise in my argument. In what follows, I will argue that RPs nevertheless can be used as shorthand for our common-sense preferences and that this claim can be defended independently of Hausman's methodological critique.

3. Two Arguments in Defence of RPT

This Section aims to counter both of Hausman's arguments against RPT. I will first maintain that preferences in RPT depend on a defensible version of positivism and instrumentalism as well as introduce the 'shorthand story' (Clarke 2016). Second, I am going to present an argument that preferences can be inferred from choices if the option set is specified correctly (Thoma 2020b).

A. Methodological commitments of decision theory

Clarke (2016, 193-4) defends the claim that "economic models are just hypotheses about agents' choices given the external circumstances" and continues, "although many economic models appear to describe agents' preferences, expectations, and the like, this is just a convenient shorthand for these choice hypotheses". This hypothesis, Clarke calls it the shorthand story, was also implicit in both of the arguments raised by Gul and Pesendorfer (2011) and it was severely criticised by Hausman (2011). In what follows I will present Clarke's (2016) argument that first, the shorthand story does not depend on a problematic positivist doctrine such as the 'Samuelson argument' and, second, that the shorthand story can be defended independently of these doctrines.

Let me start by reporting some of Clarke's (2016) definitions. It is important to note that Clarke does not either offer an explicit discussion of RPT. The is, because Clarke does not question Hausman's (2000) argument that mental states, such as beliefs, can play a role when inferring preferences from choices. I am going to address this specific problem in Subsection B. Instead, Clarke's discussion can be understood as trying to bridge the gap between preferences as they are understood in our everyday understanding and preferences in a technical sense, as they are conceptualised by decision theory. On the one hand, preferences in our everyday understanding, let's call them C-preferences (for common-sense preferences), refer to the meaning our daily language assigns to preferences. For example, if someone says that Ann prefers a Coke to ice-cream, this simply means that Ann likes more to have a Coke. This attribution of meaning can also refer to the folk psychology model; however, C-preferences are not limited to it. Essentially, Chapter II, by defending the usage of judgments to discern among alternative health states defended the view that C-preferences are a meaningful source of information for HRQoL-measurement. On the other hand, the technical concept of preferences, call them T-preferences,[16] refers to the conceptual definition given above. Accordingly, T-preferences are transitive and complete tuple comparisons of alternative states of the world. The question Clarke addresses is concerned with the exact relation between T-preferences and C-preferences.

The bottom line, according to Clarke (2016), is the similarity between the C-preferences and T-preferences when it comes to choices. Saying that someone has a C-preference for coffee over tea implies that this person would choose coffee over tea if both options are at their disposal. In a similar vein, also T-preferences are solely hypotheses about choices. Assigning a T-preference of coffee over tea maintains that an agent would have a coffee instead of tea.

The shorthand story refers to the fact that both C-preferences and T-preferences imply the same hypotheses about an agent's choices. Thus, whenever an economist who applies decision theory claims

[16] To clarify, I do not use the term RP for T-preferences either, since I did not yet defend the elicitation of these T-preferences through choices.

that an agent prefers an outcome 'a' over an alternative outcome 'b', at face value, this implies a hypothesis about choice behaviour. In Clarke's (2016) words:

> "(SHORT) Take any economist who accepts that Eve weakly prefers [C-prefers] outcome x to outcome y. This acceptance is just the economist's belief that Eve weakly T-prefers x to y" (Clarke 2016, 196).

This quotation of Clarke (2016) shows that T-preferences are simply a tool to understand a person's C-preferences. To see the usefulness of conceptualising T-preferences as a tool, Clarke invokes the difference between believing that a model is true and accepting that a model is useful for a series of purposes. Clarke writes:

> "As I render it, the shorthand story says that the role of these assumptions is one of concision: they provide a concise shorthand in which one can formulate hypotheses about complex patterns in an agent's choices" (Clarke 2016, 198).

Hence, the shorthand story invokes that decision theory is a useful concept to formulate hypotheses about an agent's choices. Note that this is quite different from claiming that a preference-based explanation of choices is true or that it correctly resembles how agents make decisions.

Contrary to the shorthand story, Clarke (2016) emphasises the 'face value story'. The face value story is Clarke's term to refer to the interpretations of preferences which does not distinguish between C-preferences and T-preferences. Hence, if one applies decision theory and identifies an agent's preference for option '*a*' over the alternative option '*b*', according to the face value story, this means that the agent's preference is a C-preference. Compare this to Hausman's (2015) understanding of preferences. As I argued in Section 1, Hausman too starts from a discussion of preferences in RPT as well as preferences in our everyday understanding. However, Hausman does not make the distinction Clarke introduces. Instead, Hausman tries to do justice to both C-preferences and T-preferences when he writes that preferences are total subjective comparative evaluations. To put this in Clarke's terms, Hausman works with the face-value interpretation of preferences.

In the previous Section, I argued, based on Guala (2019), that one should not interpret decision-theoretic preferences as mental states. Note that this is not an argument against the face value story *per se*, since I highlighted at the beginning that taking preferences to be the equivalent of desires in the folk psychology model is only one possible interpretation of C-preferences. However, Clarke (2016) allows me to go one step further than Guala does. Guala argues that preferences are dispositions to choose with a multiply realisable causal basis. In a certain sense, thus Guala claims too that preferences are a model of decision-making which allow to explain and predict choices while the causal basis is put in brackets. However, Clarke also makes clear how C-preferences and T-preferences are related. And it is this explanation which allows me to discuss the methodological implications of decision theory understood as a shorthand story and to defend it against Hausman's (2011) critique. I will do this by reconsidering the Samuelson argument and the Friedman argument.

Equipped with the shorthand story, a slightly different and defensible interpretation of these arguments can be offered. First, with regards to the Samuelson argument, let me highlight that the shorthand story implies that decision theory essentially is a theory about choice behaviour. Consequently, decision theory aims to explain and predict choices employing preferences. Note that this line of argument was also inherent in Guala's (2019) argument. To defend this claim, that decision theory is a theory about choice behaviour, Clarke (2016) does not follow the Samuelson argument. Instead, Clarke points out that there are two different ways in which evidence from psychology and neurosciences can enter decision-theoretic models. One way psychological and neurological evidence can enter is by taking these disciplines to support or undermine the hypotheses a decision-theoretic model offers. In line with Clarke, we can call this the 'epistemological dimension'. Additionally, decision-theoretic models can be analysed from the vantage point of their real content. This would mean, for instance, that decision-theoretic preferences ascribed to humans would be analysed concerning their truth value and to their accuracy in describing human decision-making.

Clarke (2016) highlights that accepting a model to be useful does not imply to believe in its truth value. Thus, the shorthand story of decision theory allows to shield criticism from psychology and neurosciences in terms of the real content of the model. However, concerning the epistemological dimension, evidence from psychology and neurosciences is helpful and can be used to improve the hypotheses about choices. Again, compare this to Guala (2019), here too Guala points to the same solution than Clarke does. And to illustrate this distinction let me highlight once again the example of prospect theory. Kahneman and Tversky (1979) use their psychological insight into human decision-making not to criticise standard expected utility (EU) theory,[17] which assumes no difference between gains and losses, but instead to highlight that an agents utility function has to have a different shape depending on whether an agent is confronted with gains or losses. Thus, Kahneman and Tversky focus on the epistemological content of a model and aim to improve it. However, the real content, i.e. that decision-making can be represented by a utility function, is left uncriticised since it is a technical device representing a person's C-preferences.

Second, concerning Friedman's instrumentalism, the shorthand story has a response to Hausman's (2011) criticism too. Clarke (2016) emphasises that instrumentalism does not shield decision-theoretic models from every evidence that is not based on choice data. Nevertheless, the shorthand story maintains that a model is about understanding how economic agents will choose in a set of circumstances and this explanation is based on T-preferences. Hence, according to the shorthand story, it is acceptable to take T-preferences as a sort of 'black box' which does not correctly describe the mental states leading to these decisions. Instrumentalism with regards to T-preferences is acceptable because the aim of these models is not to understand decision-making in itself. Again, this of course does not imply the extensive instrumentalism which Hausman (2011) criticised concerning Friedman's argument. But still, Clarke's shorthand story shields preferences themselves from a mentalist interpretation and fends off criticisms from psychology and neurosciences.

[17] EU-theory was introduced by von Neuman and Morgenstern (1944) a theory of decision-making under risk. Simply put, EU-theory demands to multiply the preferences of an agent (or the monetary value of an action) with the probability of that event to materialise. The result is the EU of an action.

So far, I introduced the shorthand story and explained its relation to Hausman's (2011) criticism of decision theory. However, I did not defend the shorthand story itself yet. To defend it, let me report Clarke's (2016) argument. It is vital to see, that the shorthand story can be defended entirely independent from committing to Samuelsson's argument or appealing to Friedman's instrumentalism. Let me quote Clarke on the defence of the shorthand story:

> "One can now proceed to argue as follows: (A) One of the defining aims of economics is to describe how external circumstances such as price, income, and taxes make a difference to an agent's or agents' choices. But (B) it is methodologically felicitous for a discipline to take an aim-relative attitude to its models. So there is a context in which it is methodologically felicitous for economics to treat preference assignments as just describing agents' choices given the external circumstances. But (C) this treatment is just what the shorthand story about preference assignments (SHORT) offers. Therefore, (SHORT) is methodologically felicitous, where one is able to implement it coherently. But one is able to implement (SHORT) coherently for the overwhelming majority of preference assignments in current economic models. So this shorthand story provides a methodologically felicitous treatment of such preference assignments" (Clarke 2016, 207-8).

Thus, to defend (C), which is the shorthand story, (A) and (B) have to be defended. Let me consider now how Clarke (2016) defends both points in turn. First, (A) maintains that "one of the defining aims of economics is to describe how external circumstances such as price, income, and taxes make a difference to an agent's or agents' choices" (Clarke 2016, 207). To see this, compare a standard microeconomics textbook. One of the main exercises that you will have to solve is how agents make consumption and production decisions given a set of external circumstances and constraints. For instance, in trade theory economists calculate the equilibrium effects and consumption patterns in autarky and the trade equilibrium and analyse how these patterns change (Melitz 2003). Similarly, health economists try to identify preferences over alternative health sates and how individuals would choose among them (Nord 2017; Williams 1995).

In defence of point (B), namely that "it is methodologically felicitous for a discipline to take an aim relative attitude to its models" (Clarke 2016, 207), Clarke points out that the aim relative attitude is a commonly used standard in model science. All what claim (B) entails is that an important aim for economic models is to understand an agent's choices given external circumstances. If one accepts that, proceeding with an aim relative attitude is defensible.

In this Section, I introduced Clarke's (2016) shorthand story. It allows to defend two claims which are regularly employed in defence of RPT. Namely that economics lastly is a theory about choice behaviour given external circumstances and that one does not have to believe in the true content of preferences, to analyse an agents choices given external circumstances. Moreover, the shorthand story allows to make a nuanced distinction between C-preferences and T-preferences. T-preferences can be used to represent judgments without referring to a mentalist interpretation of preferences.

Additionally, the shorthand story defends the first claim this Chapter argues for, namely that individual judgments or C-preferences can be distinguished from the methodological question of representing these judgments. Hence, Hausman's objection to my treatment of individual judgments as source of information independently from the methodological dimension, in Chapter II, is invalid. Remember, in Chapter II I introduced three conditions, self-interest, deliberate rationality and complete knowledge, that Hausman's (2015) sets on an agent's judgments to be able to guide HRQoL-measurement. In my response to Hausman I paused the question of representing individual judgments and argued that in addition to self-interest it suffices if an agent's judgments are consistent. Now following Clarke, I can maintain that Hausman had a face-value interpretation of preferences in mind when he set these conditions. But accepting the shorthand story I take it to be justified to distinguish between the question of whether individual judgments can be measured and why individual judgments should be respected for HRQoL-measurement.

Moreover, with regards to the second claim of this Chapter – that RPs are a good representation of individual judgments among health states – the shorthand story goes a long way. It follows that T-

preferences can represent a person's judgments because both are lastly hypotheses about choices. However, the question of how individual judgments should be identified is still open and Hausman's (2000) argument that choices elicit preferences and beliefs together still stands. Therefore, to further support my claim and to make the concept of T-preferences operational without reference to mental states I will argue that choice data can be used to infer T-preferences without having to worry about mental states.

B. Beliefs and revealed preference

Thoma (2020b) argues against Hausman's (2000) claim that preferences cannot be inferred from choices because by inferring preference from choices, one has ultimately to refer to mental states such as beliefs. Against this point, Thoma highlights that RPT can be defended by getting the descriptions of the set of alternatives an agent chooses from right. Thus, Thoma accepts a limited mentalism about the alternatives such as the beliefs an agent holds. But if these alternatives are described correctly, preferences can be inferred from choices. In what follows, I will describe Thoma's argument.

Thoma (2020b) identifies two conditions which have to be maintained when specifying an agent's set of alternatives:

> "1. The description of options should be consistent with the agent's beliefs about the nature and consequences of the actions open to her, provided the agent's relevant beliefs are mutually consistent.
>
> 2. A perceived feature of a choice situation should be included in the description of the agent's options whenever that feature affects the agent's choice behaviour, that is, when there are choice situations where the agent would make a different choice when she believes that feature is present or absent respectively" (Thoma 2020b, 12).

These two conditions maintain that the alternatives an agent chooses from should be described in accordance with how an agent perceives of them. This, at least, as long as these beliefs are mutually consistent. In what follows, I will first show how Thoma (2020b) defends this approach and then move on to give an example to see how Thoma differs from Hausman (2012).

First, Thoma (2020b) maintains that her approach is coherent with the best practice in economics. In fact, economists modify the set of alternatives an agent chooses from in a multitude of ways to guarantee that it is informative. For example, it would be unattractive to represent Ann, who as we know likes vegan chocolate ice-cream and Cola, as having to choose between a 'high sugar option' and 'nothing at all'. This hypothesis would not be very informative since it is underspecified in the light of Ann's choices. Ann would always choose the 'high sugar option' and thus making it impossible to infer meaningful predictions about Ann's behaviour. Thoma argues that specifying the option set of an agent in accordance with their beliefs is an analogous task to the one just described. Given that the aim is to understand Ann's decision-making, it is vital to understand how she perceives of the alternative options she can choose from. Therefore, Thoma concludes that nothing should be objected against this practice.

To give an example, consider Ann who at Gelateria Marlú orders a Cola even though, unbeknown to her, vegan chocolate ice-cream would be available. According to Hausman's (2000; 2012) understanding of preferences, Ann's revealed preference is 'Cola> All flavours of vegan ice-cream'. Moreover, Hausman would point out that this assigned RP is wrong given what we know about Ann's true preference. Therefore, Hausman concludes that RPs cannot be hypotheses of choices regardless of the beliefs that an agent holds. Mental states do play a role in choice behaviour and RPT fails.

Thoma (2020b) argues that there is an alternative way to defend RPT. She highlights that it is wrong to specify Ann's decision situation as one where Ann can choose between vegan chocolate ice-cream, other vegan ice-cream flavours and Coke. Rather the situation should be specified as one where Ann can have either vegan ice-cream, except the chocolate flavour, or a Coke. This specification is in line with Ann's understanding of her alternatives. Moreover, specifying the options this way, RPT dos not identify the wrong judgments from Ann's choices. In Thoma's conception, Ann's RP at Gelateria Marlú is 'Cola> vegan ice-cream (except chocolate)'.

Concerning the correct description of the option set, two points should be clarified. First, for economists to know how agents perceive of their alternatives, they should use a series of empirical methods. Applying RPT without those, runs into the danger to not understand and specify the set of alternatives correctly (Thoma 2020b). Note that this point is vital. Full knowledge about how an agent perceives of their alternatives might hardly be achieved. However, if the aim is to improve accuracy and to get as close to a true description as possible, Thoma concludes that the application of RPT can be warranted.

Second, and this point corresponds to the understanding of RPs proposed in this Chapter at large, descriptions of the set of alternatives do not need to be actually 'true'. Hence it is not necessary to correctly capture the way an agent thinks of their alternatives. Instead, it suffices to use descriptions of the alternatives that are consistent with the agents' beliefs about these options (Thoma 2020b).

Thoma's (2020b) account of options warrants the application of RPT under the condition that the options an agent chooses from are correctly specified. This means that Thoma's account does not rule out all problems of preference-based explanations. For instance, inconsistent choices and cyclical preferences can still pose problems for correct inference to an agent's utility function. However, Thoma's account implies that economists can use RPT to explain and predict choices given external circumstances. Moreover, it can be maintained that RPs are hypotheses about choices. The only concession that proponents of RPT have to make towards those holding a mentalist understanding of preferences – that is, those who hold the face value story to use Clarke's (2016) terminology – is that the set of alternatives has to be specified consistent with the agents' beliefs.

I am now in the position to repeat and describe my argument. Contrary to Hausman's claim that preferences are total subjective comparative evaluations I can hold the following: (A) RPs should not be interpreted as mental states but rather as an agent's dispositions to choose. (B) These RPs are a 'shorthand' for our common-sense understanding of preferences and hence can be used to say something about an agents C-preferences or judgments. Furthermore, the 'shorthand story' is defensible without reference to the problematic versions of functionalism or positivism that Hausman (2011)

criticises. (C) Eliciting RPs from choices, i.e. applying RPT, is possible if the option set an agent chooses from is specified in accordance with the beliefs the agent holds.

This argument allows me to counter Hausman's (2015) critique, that RPs are not able to adequately represent a person's judgments. Hausman claims that beliefs and preferences together determine choices and that if economists apply RPT they elicit the mental states that let an agent to choose. However, based on (A), (B) and (C) together, I can maintain that the RPs that economists elicit should not be seen as mental states but rather as a shorthand for a person's judgments. Moreover, can these RPs identify a person's judgments independently from their believes if the option set is specified correctly. Thus, I maintain that RPs can adequately represent a person's judgments.

3. A Hypothetical Response of Hausman

Before concluding let me shortly consider how Hausman might respond to the above argument.

Let me start by considering my claim (C) and the question about mental states in RPT. Hausman (2011) does consider the methodological possibility to assume knowledge about beliefs and then elicit preferences based on the assumptions made about the beliefs. However, Hausman does not call this methodological move RPT. Hausman explicitly engages with a method called 'bootstrapping' which is proposed by Köszegi and Rabin (2011). Bootstrapping is a technique which elicits preferences by holding the beliefs of a decision-maker fixed. In response to Köszegi and Rabin, Hausman (2011, 138) writes: "They [Köszegi and Rabin] clearly do not mean that preferences can be defined by behavior [sic]. They propose instead to 'make reasonable assumptions that render mistakes [beliefs] and preferences jointly observable from behaviour'".

Note, from a conceptual perspective, this is quite different from what (C) proposes. In (C) I maintain that by agreeing to a limited mentalism about the option set – a description of the options which

corresponds to an agent's beliefs – RPs can be identified from choices. Hausman (2011), however, emphasises the importance of the mental states involved in a choice which allow to infer preferences as total subjective comparisons. Hausman does not consider that bootstrapping might be a methodology which could warrant RPT.

However, I think that doing justice to Hausman (2012) implies to admit that his point is valid to a large extent. In fact, without any assumption about beliefs, preferences cannot be identified by choices. Nevertheless, what my argument based on Thoma (2020b) shows, is that Hausman overestimates the scope of his claim in relation to RPT. In fact, with Thoma, it is possible to maintain that even if assumptions about beliefs are necessary, these assumptions can be made concerning the option set instead of preferences. As a consequence, the preference relation itself can be defined over choices, which is the interpretation of the WARP that RPT was built on all along.

With regards to claims (A) and (B) I think that Hausman's arguments can say less. Hausman might still maintain that, concerning human preferences, mental states play a role. However, I take the reformulation of instrumentalism, as well as the Samuelsson argument based on Clarke (2016), strong enough to withstand Hausman's (2011) criticism.

To conclude, Hausman's (2000) basic observation was correct. RPs cannot be observed from choices without making assumptions about mental states. Nevertheless, this does not imply that preferences are total subjective comparative evaluations, the interpretation Hausman (2012) proposes. Instead, based on Thoma (2020b), I argued that assumptions and observations of mental states can be shifted to the option set. Hence, RPT which interprets the WARP as preference relation over choices is justified.

4. Conclusion

In this Chapter, I discussed and criticised Hausman's (2000; 2011;2012; 2015) understanding of preferences. In particular, I introduced and defended three points: (A) RPs should not be interpreted as mental states but rather as an agent's dispositions to choose given external circumstances. (B) These RPs are a shorthand for our common-sense understanding of preferences or judgments. Therefore, it is justifiable to use RPs to say something about an agents judgments. Furthermore, the shorthand story is defensible without reference to the problematic versions of functionalism or positivism that Hausman criticised. (C) Eliciting RPs from choices is possible, if the option set an agent chooses from is specified in accordance with an agent's beliefs.

(A), (B) and (C) jointly allow me to maintain that RPs can be distinguished from the normative question of why individual judgments should be used to measure HRQoL. Remember, this is the second part of my argument presented in Chapter II and justifies the application of individual judgments among health states for HRQoL-measurement. Against Hausman's (2015) strict conditions on a person's judgments, I can maintain that RPs are a methodological tool and that completeness and transitivity should be understood as an 'as if' story. Furthermore, I showed that RPs among health states are a representation or shorthand for individual judgments among these health states. These RPs identify a person's judgments independently from their believes if the option set is specified correctly.

IV. Adaptive Preferences or Whom to Ask?

In this Chapter I shall defend two claims: First, I argue that HRQoL can be measured, however that it should not be the sole measure of health. Instead, I propose to understand HRQoL as part of a broader, yet to be constructed, health measurement system. Second, I emphasise that it is best to rely on the judgments of current patients to elicit HRQoL values.

In this Chapter, I will discuss the challenge that arises to HRQoL-measurement out of preference change. Individual judgments among health states are significantly different for persons selected randomly from the population at large compared to patients who are currently experiencing a health condition.[18] Yet there is no explanation of why this is (Hausman 2015; Patrick et al. 1982; Balaban et al. 1986; Revicki et al. 1996; Boyd et al. 1990; Dolan 1999; Nord 1999; Nord 2001; Wu 2001; Ubel et al. 2003). A different, but related challenge arises from the fact that many persons with physical impairments, who are well adjusted,[19] deny that their impairments bear on their HRQoL at all (Atkinson 2007; Lane 2002). This result stands in sharp contrast to both an understanding of health as functional efficiency as well as to how members of the general public would evaluate health states with functional impairments similar to disabilities (Hausman 2015). In the light of these findings, Hausman identified two challenges. First, Hausman argues that HRQoL is the wrong concept to evaluate health. This because health, understood as functional efficiency, and HRQoL can move in different directions. Disabled persons, for instance, who did adjust to their condition report high levels of HRQoL despite their functional impairments. Second, however, if one wants to continue to measure HRQoL, the question who should be asked emerges. Given that there is no uncontroversial answer of what might account for the different answers depending on whether one is healthy or currently experiencing a

[18] This refers to the average judgment of these groups.

[19] With well-adjusted I refer to disabled persons who are relatively well off and able to engage in activities that are important to them. Note that this ability depends partly on public provisions, such as disabled friendly entrances in buildings. Which highlights an additional problem of HRQoL measures: Policies that do not impact the health state of a person influence their HRQoL (Broome 2002).

condition, Hausman maintains that it might be best to use deliberative groups consisting of patients and members of the public to elicit HRQoL values.

My response to Hausman (2015) will be nuanced. In general, I agree with Hausman's criticism. However, I do not draw the same conclusions he does. I argue that HRQoL can be measured but that it cannot be the sole measure of health states. I propose to see HRQoL as a vital component in a broader system of health measures. Further, I suggest relying on the judgments of patients to measure HRQoL. Patients have unique insights into life with a condition, something that members of the public don't. To draw this conclusion, I apply Paul's (2014) notion of 'transformative experience', which emphasises deep changes in a person's evaluative standards through living such an experience.

I will proceed as follows: Section 1 gives an overview of possible explanations of preference change in the health economics literature and Section 2 reports Hausman's (2015) conclusion in the light of the previous literature overview. In Section 3 I argue against Hausman's critique that HRQoL can be measured. In Section 4 I argue that it is best to rely on patients' judgments for HRQoL-measurement. Section 5 concludes.

1. What Accounts for the Differences in HRQoL Values?

In this Section, I will give an overview on the topic of preference change and potential explanations of it. First, I discuss the differences in health state evaluations of patients compared to members of the public. Subsection A analyses whether respondents are suffering from mistakes or biases. It will become clear that both patients and members of the public might do so. Subsection B discusses whether patients change their evaluative standards in the light of a health condition. In short, also this approach does not appear to explain the data fully. Second, I turn to HRQoL-measurement in the context of disabilities. Subsection C discusses the observation that disabled persons, who are well adjusted, report levels of

HRQoL that are in contrast to an understanding of health as functional efficiency. I will highlight that this raises doubts about whether health should be evaluated in terms of wellbeing.

A. Who misunderstands health states, the (healthy) public or patients?

One explanation for the differences in HRQoL values of patients compared to members of the public focuses on mistakes and biases that respondents might suffer from.

On the one hand, it might be that members of the public are not able to fully grasp what a health state is like. Hence, they cannot evaluate it properly. For a healthy person, it is hard to understand what it entails to experience a health condition (Hausman 2015; Nord 1999; Ube et al. 2003). The so-called 'focusing illusion' (Schkade and Kahneman 1998; quoted in Hausman 2015) might lead healthy individuals to focus on what they cannot do given a disease, rather than focusing on what they can do. Consequently, healthy respondents might overestimate the impact of a health state on their wellbeing. This is one reason why Nord (1999) highlights that it would be best to rely on an individual experiencing a health state, rather than asking the public at large. Dolan (1999) argues that everyone's judgments about health states should be elicited. But these judgments should be weighted differently prioritising those respondents who have more information about a health state, including information about what it is like to live with a health condition.

On the other hand, there appear to be instances of mistakes in patients' health state evaluations: the reported wellbeing of patients is at odds with what can be considered an objective health improvement. Hausman (2015) builds on a statement from a health practitioner working in an intensive care unit, Kristen Pecanac, who writes:

> "For example, end-stage renal patients who receive kidney transplants sometimes go through a stage of depression because their life changes drastically. They feel lost because they have more empty hours to fill (from not going to dialysis), and they often sever relationships with others who have not gotten a transplant yet because they feel they no longer share a bond. Renal disease is a clear detriment to health, yet patients are able to adapt to such a degree that the physical limitation

> becomes a part of who they are, and it contributes to their well-being" (Pecanac; quoted in Hausman 2015, 92).

Pecanac points out that individuals who experience an objective health improvement via a kidney transplant experience depressions and hence low wellbeing. A conclusion that seems implausible and that highlights that individuals might misunderstand health improvements in terms of wellbeing. This is also what Hausman (2015) concludes. He writes that patients might overestimate the peaks of certain experiences. Thus, a changing mood after a significant life change such as a kidney transplant might lead individuals to underestimate the health improvement they got. While I agree that this might be the case here, I would point out that Pecanac refers to his own observations to the mood of patients. However, HRQoL is defined in terms of preferences and judgments among alternative health states. Thus, whether these patients who received a kidney transplant would also adjust their judgments among health states with and without a kidney transplant is a different question which I cannot answer due to missing evidence.

Note that there might be a second reading of Pecanac's statement too, one which doubts whether HRQoL is the right measure of health. This conclusion too follows from the observation that wellbeing, in terms of mood, decreases, while a patient's health (understood as functional efficiency) increases through a kidney transplant. Assuming that the mood deterioration translates into HRQoL values, the paradoxical situation emerges where health and HRQoL move in different directions. Note that I am not claiming that this interpretation of Pecanac's statement is true. It stands on two assumptions, namely that the deteriorated mood translates in HRQoL values and that it is not a bias of respondents (the interpretation that Hausman (2015) suggests) which drives the result. However, I do maintain that this is a plausible reading of the evidence which calls for further investigation of Pecanac's observations.

The bottom line of these arguments is the following: First, there are limitations to members of the public in forming judgments among alternative health states. This follows from their difficulties to understand what exactly a health state entails and what life with a health condition is like. Second, also the

judgments of patients should be read with caution. On the one hand, patients might overestimate certain peaks in their experienced wellbeing so under- or overestimate changes in HRQoL. On the other hand, however, it might also be possible that it is not the judgments of patients that are mistaken, but instead that individual judgments do not fully capture health in terms of functional efficiency. This reading of the evidence would raise doubts on the applicability of HRQoL-measurement. Though, to settle this question more evidence is needed.

B. Do patients adapt and change their evaluative standards in the light of a health condition?

An alternative explanation for the different evaluations of health states is that patients cope with their health condition and adapt their wellbeing to a health state. Consequently, the judgments of patients among health states are different from the judgments that members of the public voice (Hausman 2015; Nord 1999).

The ability of adaption can lead to two different interpretations, as Hausman observes. On the one hand, Brock (1995) emphasises that if individuals can adapt, they are right in doing so. But equally correct is a healthy person who assigns low values of HRQoL to health states. This is, as Brock writes, because the evaluative standards are simply different for patients and healthy persons. On the other hand, Menzel (Menzel 2014; Menzel et al. 2002) argues that members of the public at large who are surveyed are mistaken if they assume that their preferences would not adapt. Thus, correct judgments among health states would assume that one can change their judgments when they experience a condition.

But what exactly accounts for this adaption in judgments? The most straightforward answer would be information. Several experiments have been conducted to analyse whether informing healthy people about their ability to adapt to a certain health state would change their evaluation thereof. Evidence of these experiments is mixed. Ubel et al. (2002; 2005) and Damschroder et al. (2005) find that healthy people do adjust their preferences among health states and get closer to the judgments of patients once they were informed about this ability. These findings suggest that most of the difference between the

evaluation of health states by those currently experiencing it and evaluations by the public at large can be explained by missing information.

However, Damschroder et al. (2008) find no evidence of adaption in time trade-off evaluations given information treatments. In contrast to the previous studies, Damschroder et al. make clear that subjects are evaluating health states concerning their own lives, a vital point. Because if it is not specified that judgments about one's own life are asked for, these judgments are not very reliable. Remember, in Chapter II I emphasised the importance of self-interest since what counts are judgments about one's own life. Otherwise, respondents could simply follow the lead the information treatment provided and assume that the ability of adaption is socially acceptable given they are not challenged to think about their own wellbeing. However, once asked about self-interested judgments, adaption of healthy respondents towards the judgments of patients did not take place. Concluding this discussion, I think that the results of Ubel et al. (2002; 2005) and Damschroder et al. (2005), which suggest that members of the general public were missing information when they did not adapt their judgments should be read with caution. More evidence is needed to settle the question of adaption. Given the suggestions of these results, it is plausible to assume that information will not suffice to close the gap between evaluations of the general public and patients.

These results suggest that there is something unique about experiencing a health condition, that makes patients adapt and change the HRQoL values compared to how members of the public evaluate different health states. However, there exists a challenge to this story of adaption. A study conducted by Smith et al. (2006) distinguishes three groups of respondents to form judgments about life with a colostomy: the public at large, current patients and former patients who had a colostomy which is now reversed. Smith et al. find that current patients report higher levels of HRQoL than the other two groups. There is a significant difference between patients on the one hand and the public at large as well as former patients on the other hand. This result, that both former patients and the general public are strongly penalising HRQoL with a colostomy, is striking. It might undermine the argument that only patients understand what life with a health condition is like because they can adapt to it. Former patients should

know too what it is like to live with a colostomy and how they dealt with it. Thus, their evaluation should be as reliable as are those of current patients.

Consequently, the ability of patients to adapt to a health condition and thus to understand it better than members of the public do might be called into question. This, in combination with results of the previous Subsection – that both members of the public and patients might suffer from mistakes – implies that the explanations for the significantly different levels of HRQoL of patients and the public at large still run into the dark. In Section 4, I will reconsider these findings and argue that especially Smith et al. (2006) should be read with caution. Moreover, I will argue that a reading which suggests that patients have unique insights into health conditions is possible and thus that it would be best to rely on the judgments of patients. But before I come to this, I first need to consider the question of disabilities as well as Hausman's (2015) conclusions in the light of the above findings.

C. Should disabilities be evaluated in terms of HRQoL?

So far, I focused on health states in general. But there is one specific point to discuss, namely, disabilities. As stated in the introduction, on average, disabled people who are well adjusted to their conditions do not report lower levels of HRQoL compared to individuals who do not suffer from disabilities (Atkinson 2007; Lane 2002).

It is important to understand that the judgments of disabled persons are not mistaken, as Hausman (2015) maintains. He discusses statements by the deaf community who emphasise that deaf persons do not suffer from a disability and that their deafness allows them to experience the world in different, richer ways. Note that these are not just words, as many deaf persons reject cochlear implants that could partially restore their ability to hear (Lane 2002). Similarly, Atkinson (2007) writes about her experience of going blind. She describes her gradual loss of vision as not being the same than to solely close one's eyes. Instead Atkinson emphasises that she experiences the world differently, yet richer, by feeling, smelling and hearing more. She too describes her rejection for a treatment that could give her sight back.

But these claims do not deny that disabilities imply functional impairments which matter (Hausman 2015). Hausman emphasises that a person who does not hear or see has a higher risk of accidents and injuries. Similarly, deafness or blindness excludes people from parts of human culture and reduces the number of projects a person can pursue. But then, in terms of health, it is wrong to maintain that a disabled person is equally well off than a healthy person is.

This is why Hausman (2015) concludes that health should not be evaluated in terms of HRQoL. He argues that it is mistaken to assume that a disability prevents one from living a satisfying or successful life. Yet, a disability is still a disfunction that matters and which HRQoL is not able to capture. Hausman concludes that

> "Whether or not eliciting preferences is a good way to measure well-being, well-being is not a good measure of the value of health" (Hausman 2015, 95).

Here Hausman (2015) argues that HRQoL is the wrong dimension to evaluate health states. Because whether or not a person can live a fulfilling and satisfying life, a disability still influences that person. This point leads me directly to Hausman's criticism of HRQoL-measurement, which I will discuss in the following Section.

Before moving on, however, let me repeat that I reviewed arguments which aim to understand the differences in judgments of patients and members of the public. Generally, there is no clear answer to what explains the differences measured in HRQoL. Further, I also touched upon Hausman's (2015) general doubt whether HRQoL is an adequate concept to measure health, which he raised in the context of disability. In the following Section, I will discuss Hausman's broader take on HRQoL-measurement he voices in the light of the findings discussed in this Section.

2. Hausman's Conclusions Regarding HRQoL

In this Section, I report Hausman's (2015) conclusions regarding HRQoL-measurement in the light of preference change. First, I introduce Hausman's claim that HRQoL is the wrong measure of health and second, I explain Hausman's suggestions to those who, nonetheless, maintain that HRQoL should be measured.

As already emphasised in Section 1.C, Hausman (2015) argues that HRQoL is the wrong measure of health. According to him, this becomes particularly evident in the context of disabled persons who report high levels of HRQoL despite their functional limitations. This is not to deny the fact that disabled persons can live a satisfying and well-adjusted life, however, this shows that health and HRQoL are not always on pair. I add here that health improvements could not be captured in terms of HRQoL as well, as I discussed in the context of kidney transplant patients in Section 1.A Concluding, these cases show that HRQoL undervalues functional impairments in some cases, while in others HRQoL might underestimate health improvements. Therefore, health states and wellbeing can move in different directions, resulting in HRQoL as the wrong measure of health.

Moreover, Hausman (2015) emphasises the differences in HRQoL that members of the public associate with health conditions compared to current patients. Given that there is no clear answer to what might explain these differences, it might be that both groups are mistaken. This gives Hausman further support to reject HRQoL-measurement.

However, if one wants to continue using HRQoL measures, the question whose judgments should be used has to become the central problem (Hausman 2015). The best way to solve this, according to Hausman, is to rely on focus groups where survey respondents can deliberate. These groups should consist of healthy people as well as individuals suffering from a condition. Moreover, respondents should be assisted and provided with information by healthcare professionals and medical researchers. But since Hausman is doubting the success of HRQoL-measurement he is unprecise in the way he

describes how focus groups should be set up.[20] Hausman merely points out that deliberation and guidance can help to overcome the biases of respondents. But how and why relying on both patients and members of the public should improve the quality of judgments is left unanswered

In the following two Sections I will engage with both of Hausman's (2015) arguments. I will first defend the possibility to measure HRQoL and then argue that it would be best to rely on the judgments of patients to measure HRQoL.

3. Why HRQoL can be measured

In this Section, I defend the possibility to measure HRQoL against Hausman's (2015) critique. I will pause the question whether both patients and members of the public are mistaken, as I argue in the following Section that the judgments of patients should be elicited. Thus, here I engage with Hausman's argument that health should not be evaluated in terms of HRQoL.

The basic problem that Hausman (2015) highlights is that HRQoL does not always fully reflect health and changes in health (understood as functional efficiency). In the following, I will argue that this only poses a problem if one maintains that HRQoL is the only thing that should be taken into account when evaluating health states. Instead, my aim here is more modest. I claim that the impact of a health state on wellbeing can be identified by HRQoL-measurement, not that health itself can be measured in terms of it. To make this argument, let me introduce a distinction by Nord (1999) who writes:

> "Society may very well wish to take into account both objective symptom relief and functional improvement and the increase in subjective utility (quality of life) when valuing a health service […] In other words, both these factors may need to be

[20] Hausman (2015, 95) writes: "Since I shall ultimately argue against the standard practice of assigning values to health states by eliciting preferences, I need not resolve the question of whether health economists should elicit the preferences of the general public or the preferences of those experiencing a diminished health state."

> included in the societal value function. The trouble with the QALY model is that it only includes one of them, namely subjective utility" (Nord 1999, 89).

As Nord (1999) points out, HRQoL-measurement only focuses on the subjective utility or in the terminology employed in this thesis, on individual judgments among health states. But that might not be everything necessary to engage in cost-effectiveness evaluations or measurement of population health. To evaluate health for these purposes a measure that can adequately represent health in terms of functional efficiency and of subjective judgments is needed. However, HRQoL does not achieve this as the examples of disabled persons or renal disease patients show all too well.

However, by refraining from arguing that HRQoL is everything that counts in terms of health evaluation, the above examples do not pose a problem anymore: Hausman (2015) argues that individual judgments among health states are at odds with an understanding of health as functional efficiency, not that individual judgments are mistaken. Therefore, my argument in Chapter II, that everyone individually knows better what is good for them, still holds. Thus, what I maintain here is that HRQoL-measurement identifies individual judgments among alternative health states and consequently represents the impact of these health states on a person's wellbeing.

Further, I do maintain that wellbeing, or HRQoL, is an important aspect of health. Imagine, for instance, you had a migraine. The health states you are characterised with are pain, problems with concentration, etc. And while I do not claim that these health states themselves should be evaluated in terms of HRQoL, they certainly impact your wellbeing. You are not able to do other things you would like to do, you feel pain, etc. Thus, I think that it is not too farfetched to state that health impacts wellbeing and to emphasise that this is an impact that matters. Consequently, I think that HRQoL should be measured and should be part of a broader, yet to be constructed, measure of health. For clarity, I will from now on use the term HRQoL* to refer to measuring the impact of health on wellbeing that is part of a broader health evaluation systems. The term HRQoL, however, refers to the evaluation of health itself, in terms of wellbeing.

Let me repeat, HRQoL* measures the impact of health states on a person's wellbeing. This is in accordance with Hausman's (2015) criticism. He questions whether health can be measured in terms of wellbeing. But these are two different questions. And my defence of HRQoL* bypasses Hausman's argument since I do not defend that health should only be evaluated in terms of wellbeing. Instead, I simply highlight that health states impact wellbeing and HRQoL* is measuring this impact. From a public or societal perspective, HRQoL* does not suffice to evaluate health. Consequently, epidemiological measures and cost-effectiveness evaluations relying on HRQoL* are insufficient. Before concluding, let me add one more reason to take the distinction between HRQoL and HRQoL* serious.

It appears that individuals with low socioeconomic status have, on average, lower health levels, lower life expectancy and higher probabilities for a low Ankle-Brachial index (Wang and Gang 2019; Williams 2006; House et al. 1990; Agha et al. 2011). Now, given that preferences can adapt to health states, as broadly documented by Hausman (2015), Patrick et al. (1982), Balaban et al. (1986), Revicki et al. (1996), Boyd et al. (1990), Dolan (1999), Nord (1999; 2001), Wu (2001) and Ubel et al. (2003), it seems plausible to assume that a health evaluation system solely based on HRQoL might be unfairly biased favouring individuals with higher socioeconomic status. This for two reasons. First, individuals with low socioeconomic status might evaluate their own health states higher than they should, undervaluing the conditions they currently experience. Second, individuals with low socioeconomic status are also more likely to develop certain health conditions which they might additionally undervalue in terms of HRQoL losses, given that they start from a lower, adjusted, level. Let me add that even though plausible, it is not entirely clear how strong this bias might be. Evidence shows that people with lower socioeconomic status also report lower subjective health levels (Saito et al. 2014; Ostrov et al. 2000) suggesting that subjective judgments can report differences in health. However, it is not clear whether these responses do capture all the difference in health (in terms of functional

efficiency). Therefore, I think that it is vital to take seriously the limitations of HRQoL-measurement and call for a broader evaluation of health states.[21]

To conclude, I agree with Hausman (2015) that HRQoL measures do not capture everything that matters in terms of health state evaluations. But I showed that this argument does not undermine the possibility to measure HRQoL*, an evaluation of the impact of a health states on a person's wellbeing which is part of a broader measure of health. How this societal evaluation of health should look like is a different question which I do not answer here. Instead, I will shift my attention to the question whose judgments should be used to evaluate health states.

4. In favour of patient's judgments to measure HRQoL[22]

In this Section, I will analyse Hausman's (2015) point that both patients and members of the public are likely mistaken in their judgments and, thus, that HRQoL should be elicited through focus groups consisting of both patients and members of the public. In response to Hausman, I first argue that it is not clear why relying on the judgments of both patients and members of the public should improve HRQoL measures. Second, I will analyse the literature on preference change in philosophy and show that transformative experiences are most likely the best explanation for the different evaluations. Third, I will make the case in favour of patient's judgments to measure HRQoL.

A. Why not rely on both members of the public and patients to measure HRQoL?

In this Subsection, I argue that it is not clear why relying on both members of the public and patients should improve the quality of HRQoL measures.

[21] One might object that increasing socioeconomic status is positively correlated with healthy habits (Feinstein 1993; Meara 2001; Ford et al. 1991) making it healthy habits that account for these differences and not socioeconomic status. This is true but note that I did not comment on policy solutions. My point was solely that given such a distribution of health on a societal level, fairness concerns might be raised if health is evaluated solely on the basis of HRQoL.

[22] What follows holds for both HRQoL and HRQoL*.

Remember, in Section 1 of this Chapter I introduced two explanations for what might account for the preference change between patients and members of the public. The first one focused on biases and misunderstandings and the second one discussed the ability of patients to adapt to a health state. Concerning the first explanation, it seems that both members of the public and patients can suffer from mistakes or biases. Thus, Hausman suggests the use of deliberative groups to reduce biases and give respondents time to think carefully. And here I agree with him. Generally, I assume that deliberative groups can reduce the biases of both groups of respondents to a large extent.

Given that mistakes can be reduced through deliberation, however, what remains as a potential explanation for the different judgments among health states is the ability of patients to adapt to their condition. But here too, results seem to go in opposite directions. On the one hand, the plausible explanation seemed that patients understand health states better than members of the public. On the other hand, however, former patients with a colostomy evaluate this condition as badly as members of the public. Thus, Hausman (2015) concluded that it is not clear where the different responses stem from and why patients answer so differently than members of the public.

Based on this uncertainty, Hausman (2015) concluded that it might be best to rely on deliberative groups to elicit evaluations of health states consisting of both members of the public and patients. But let me add that Hausman is rather unprecise how exactly such groups should work and how measured health states should be identified. Therefore, it is difficult to criticise this proposal in detail. Instead, I will express my doubt in general terms too. What worries me with regards to Hausman's proposal is his premise that the judgments of both patients and members of the public are probably wrong. However, given that both groups are likely to be mistaken, according to Hausman, how should relying on a compromise (average) of two groups increase the accuracy of the estimate? Moreover, if one of these two groups would get their judgments right, combining both groups would reduce the quality of their

judgments.[23] Therefore, I conclude this section by maintaining that it would be better to aim at identifying those respondents that are more likely to get their judgments right: patients. In the following two Subsections I will do this.

B. Three possible explanations for the differences in HRQoL values

In this Subsection I introduce three possible explanations of preference change that can be found in the philosophical literature. I will draw on these explanations to defend my proposal for relying on patients' judgments.

Hansson and Grüne-Yanoff (2018) document three approaches to explain preference change. Preferences can change over time, through changing information which influences the beliefs of a person and finally through experiences which alter the evaluative standard that a person holds. While it is likely that a combination of all three mechanisms is present, I will focus mainly on preference change through experience.

The least relevant mechanism to explain differences in evaluation between patients and members of the public is time preferences. The standard model for these preferences assumes that a decision-maker at time t evaluates outcomes today as well as in the future and discounts future outcomes with a certain factor δ. That means that in the future the same outcome is worth less compared to obtaining it today (Hansson and Grüne-Yanoff 2018). This change in evaluation is not relevant for the present purpose since HRQoL measures do not elicit judgments over time.

Information change, however, seems more important. On average, patients will know better what life with a condition is like than healthy members of the public do. Moreover, patients can adapt to health

[23] I assume that an average value of the two groups initial judgments is the most likely outcome. This is, because on the one hand, as Damschroder et al. (2008) show, members of the public provided with information about adaption do not adjust their judgments towards those of patients. On the other hand, I think that patients are confident enough in their judgments so that they won't change them based on what members of the public will say.

states, something which members of the public might not know or think of. With regards to this mechanism, I already discussed several experiments in Section 1.B. Some studies found that providing respondents with information about their ability to adapt as well as what life with a condition is like leads them to assign a higher HRQoL to health states than without this information treatment (Ubel et al. 2002; Ubel et al. 2005; Damschroder et al. 2005). However, these studies face the downside that it was not clear to respondents that their self-interested judgments were elicited. Once adjusting for that, Damschroder et al. (2008) find no evidence of adaption in time trade-off evaluations given information treatments. Therefore, I conclude that information might play a role. However, more evidence is needed to show that solely information can account for the differences in evaluation between patients and members of the public.

One additional point might provide some evidence in favour of information as accounting for the different evaluations of health states. Many of the studies which elicit judgments among health states are conducted at Universities and thus many respondents might be University students. Now, usually this is not indicated in studies. However, given my own experience with studies on Campuses, I think that it is plausible to maintain this. And if this were the case, it might be that the 'members of the public' group might overestimate the impact of health states. This is because, on average, students are young and did not experience many health problems yet. Thus, their beliefs among health states could be worse than intended by the study authors leading to an underestimation of HRQoL. Rabin et al. (2011) suggest that the interpretation of health states asked in time trade-off questions, such as 'usual activities' depend strongly on the age group a respondent belongs too. Again, I have to add that I lack systematic evidence for this claim; however, part of the differences in responses might be accounted for by information-based preference change.

The third mechanism that might offer a systematic explanation of what explains the evaluative shift in judgments among health states is experience. Experiences are more profound than information. They change the evaluative standards of a decision-maker while new information simply changes the beliefs of given alternatives. The question I aim to answer here is whether experience provides an explanation

of the systematically different judgments of patients compared to members of the public. This will be discussed in the following Subsection.

C. Transformative Experiences

I will now defend the possibility to rely on the judgments of patients based on an explanation of experience. I will introduce Paul's (2014) notion of 'transformative experience' and argue that it is plausible to assume that patients experience their health state and so that their judgments should be favoured.

i. Paul on transformative experiences and the implications for HRQoL-measurement

Let me explain first what I mean by transformative experience. Paul's (2014) book "Transformative Experience" is one of the most important works in this area. It sparked a wide debate, both inside and outside academia on the question of preference change and rationality (Rothman 2013; Rothman 2015; Barnes 2015a; Barnes 2015b). Paul's idea of transformative experience emphasises the epistemic dimension of experiences and their importance for the first-person perspective to understand certain outcomes. Let me start with an example:

Consider how the current lockdown induced by the novel Coronavirus affects you.[24] Undoubtedly, it is bad for almost all of us. Though, I would like to focus your attention to the period around Christmas 2019 before the number of patients in European intensive care units started to skyrocket. News of the new virus arrived in Europe. Media reported how Chinese officials set the whole province of Wuhan under a lock-down as well as how other Asian countries struggled to contain the virus. I can remember how I talked to my friends and family about the strict quarantine measures in the province of Wuhan. In particular, I still hear myself saying that such extreme measures could only be imposed by an autocratic state. Life in quarantine, I thought at that time, is so terrible that Europeans would not accept it. In terms of preferences, I would have assigned an extremely low level of wellbeing and (mental)-

[24] This Chapter was written in May 2020 when most of the World, certainly Europe, was in a lockdown due to the Sars-Cov-2 pandemic.

HRQoL to a lockdown. But then, history happened: First Italy, soon all of Europe closed public spaces and imposed quarantine measures. These measures changed my daily habits dramatically: I had to write this thesis from home instead of the library. I had to hang out with friends on Zoom, instead of meeting them in person, and much more. But the strangest thing, I have to admit, is that I adapted easily. At the beginning, I was quite shocked. But soon I realised that this was the new normal and that I had to live with it. If I think about it clearly, my preferences about the lockdown shifted dramatically. Of course, there are things I miss, and I would rather prefer it to stop. But, by and large, I adapted well. Now, this is only my perspective. But, arguably, many people had similar experiences as a recently conducted study in Germany shows (Entringer and Kröger 2020).[25]

To be precise, there are a series of dissimilarities between having a disease and adapting one's judgments to the quarantine induced by the Coronavirus. However, one similarity is striking: namely, the adaption and change in judgments. The measures that followed the spread of Coronavirus came extremely fast and dramatically changed our life. And so did also my judgments about life under quarantine. But why is this? Paul's (2014) work on transformative experiences analyses preference changes induced by subjective experiences. The point that Paul makes, which is relevant for the Coronavirus example as well as for diseases, is that there is a strong interconnection between knowledge and experience. Until I had not experienced what it is like to be locked inside my home, I was not able to grasp the lockdown's consequences entirely. Similarly, the evaluation of health states from the advantageous point of view of a healthy person must seem limited. Despite information and deliberation, for someone not experiencing it, it might be impossible to form judgments about its consequences.

Paul (2014) emphasises the unique epistemic character of a new experience. The reason is that unless one experiences something, one cannot exactly know how it will be like to undergo such an experience. Besides the coronavirus quarantine discussed above, imagine you never tasted an oyster. You can read

[25] Note, I take Entringer and Kröger (2020) only to be indicative for my thesis, not as a proof.

food blogs, talk to people who had eaten oysters and try to get as much information as possible. But there is no way for you to know for sure how it will taste, unless you try it. In Paul's words:

> "[…] testimony, and theories aren't enough to teach you what it is like to have truly new types of experiences — you learn what it is like by actually having an experience of that type. Unless and until scientists discover how we are to leap the explanatory gap between scientific theory and experience, real people face this kind of epistemic limitation, that is, real people (including scientists) can't know what it is like to have new experiences just from knowing what scientists know right now about how the brain works" (Paul 2014, 12).

Paul (2014) continues by highlighting that having an experience is also essential for assessing the value of such an experience. To subjectively understand what something means to you, you have to experience it.[26]

The consequence of this perspective is that a disability, like blindness, is simply incommensurable to someone who can see. As Atkinson (2007) writes, going blind completely changed her sensory apparatus. Instead of seeing, her ability to smell and hear drastically increased and opened up a completely new way of experiencing the world. Similarly, it is also questionable whether the evaluation of health states and their impact on wellbeing can be done by healthy members of the public. Their judgments are simply lacking the experience of what a health state is like. To see this let me come back once again to the Coronavirus example:

Imagine that in January 2020 someone asked you to participate in a deliberative group to elicit your judgments about life in quarantine. Imagine further that you would get information by health professionals, epidemiologists, and by a group of inhabitants of Wuhan who would report their first-

[26] Paul (2014) distinguishes between personally transformative and epistemically transformative experiences. An epistemic transformation gives one the ability to understand what it is like to have or be X. A personal transformative experience is more substantive. Personal transformative experiences change a person's evaluative standards completely. For the present purpose, I do not need this distinction, since my argument builds on the epistemic dimension of experiencing a health condition. But note that this is not to deny that certain serious conditions (like disabilities) might induce a personal transformative experience.

person testimony about their experiences with quarantine measures. You would get information; the professional would tell their scientific take on quarantine and its impact and the inhabitants of Wuhan would assure you that you will adapt to life in quarantine and that all considered it is not that bad.[27] How would you choose, would you really agree with the inhabitants of Wuhan? Before I experienced the lockdown, I certainly would have said that it is terrible and that my HRQoL would be very low. Yet, here I am, and I have to admit that my preferences changed through the experience. Arguably, this is an experience many others made too.

Similarly, I contend it is with health states. Eliciting judgments of healthy people is not beneficiary because these respondents do not understand the health states properly. They lack the experience to do so. Before concluding, I have to address one more point, namely the question whether this perspective is in line with current scientific findings.

ii. Does 'transformative experience' explain preference change?

In Section 1.B I discussed the findings of Smith et al. (2006) who show that former colostomy patients evaluate a state characterising colostomy similar than members of the public do while current patients evaluate their colostomy differently. Hausman (2015) uses this finding to argue that the explanation of a change in evaluative standards is unlikely since former patients would have experienced it and then should also be able to report this.

However, there can be raised some doubts against this interpretation of Smith et al.'s (2006) study. The main point is that former patients knew that their colostomy would be reversed. This knowledge might have prevented them from adapting to a health state and instead experiencing it as a transitionary pain. Thus, former patients might, on average, have experienced the colostomy more disturbingly. Moreover,

[27] Note that with this example I do not intend to gloss over the atrocities and human right violations the Chinese government committed in Wuhan to contain the virus (Amnesty International 2020; Eve 2020). Nor do I ignore the economic challenges the lockdown induced. The aim of this example is to provide an intuitive understanding of preference transformation while assuming away other challenges.

Smith et al. highlight that it is unlikely that current patients positively distort their happiness and utility values to protect themselves. Doubts about such a mechanism are widespread in the literature (Diener et al. 1999; Kahneman et al. 1999; Riis et al. 2005; Ubel et al. 2005). Finally, to my knowledge, there is no study replicating these results, nor could I find other studies who were relying on the judgments of former patients. To be clear, I do not want to suggest that Smith et al.'s study is invalid, but I want to emphasise that their results should be read with caution.

But I have to admit that Smith et al.'s (2006) findings are puzzling. If the authors are correct, it is not clear whether the idea of experiences can explain the difference in judgments between current patients and members of the public. Of course, one possibility would be to suggest that experiences are not one-way, so that if someone becomes healthy again, their judgments too will change. While this might be a possibility, I think that lastly it is an empirical question to explain what accounts for the preference change. However, given the absence of a clear scientific answer, I maintain that an explanation of preference change based on transformative experiences is plausible.

Accepting this argument, that experience accounts for the preference change, implies that the judgments of patients are better equipped than those of the members of the public are to measure HRQoL. Note, this is not to say that members of the public are mistaken. Instead, I simply maintain that patients appear to be better equipped to understand what life with a health state is like, which makes their insights and judgments highly valuable. Thus, I maintain that patients' judgments should be used to measure HRQoL.

One further implication of relying on an explanation of transformative experience deserves attention though. Given that a shift in evaluative standards occurs, also the intra-personal comparison of health over time, that a QALY measure seeks to achieve, has to be questioned. If individual evaluations of alternatives change, it is not clear how a person's HRQoL, or QALYs, over several years could be computed. A point that deserves further attention for the applicability of HRQoL* in a broader evaluation system of health. Something that I cannot do here.

To conclude, in this Section I argued that HRQoL* can be measured and that one should rely on the judgments of patients to do so. I achieved this by introducing Paul's (2014) notion of transformative experience which highlights the uniqueness of experiences in evaluating health states. Even if there might be a challenge to this interpretation based on Smith et al. (2006), more evidence is needed to settle this question conclusively.

5. Conclusion

In this Chapter, I discussed the problems of HRQoL-measurement to arise out of preference change. These problems were first that health and wellbeing are not always on pair and thus HRQoL is not able to capture everything that matters to a health state. Second, in the absence of a clear explanation what accounts for the systematically different judgments among health states by patients and members of the public it is also not clear whose preferences should be used to elicit HRQoL. While I accepted Hausman's (2015) challenges to these problems I rejected the conclusions he draws. First, I argued HRQoL is measurable but that it should not be the metric to evaluate health states. Rather, HRQoL should become HRQoL* and represent one dimension of a broader measure of health. Second, I suggested to rely on the judgments of patients experiencing a health state. This because their experience allows for unique insights that members of the public lack. However, I pointed out that this interpretation is possible in the absence of more systematic evidence. Thus, to finally settle the question whose judgments should be used for HRQoL-measurement more evidence is needed.

V. Conclusion

In this thesis, I engaged with Hausman's (2015) critique of HRQoL-measurement. I argued that individual judgments are a reliable, albeit imperfect, guide to a person's wellbeing and that forming judgments among alternative health states, as defined by the EQ-5D and the HUI-(3), is a valid compromise between accuracy and tractability of health measurement systems. Further, I argued that preferences, as they appear in RPT, are a representation of individual judgments, making HRQoL measurable. Finally, in the light of the empirical observation of preference change, I argued that HRQoL should become HRQoL* and represent one dimension of a broader measure of health states. Moreover, I suggested to rely on the judgments of patients experiencing a health state due to their unique insights into life with health conditions.

My contribution in this thesis is threefold. First, I distinguished between a methodological and a normative dimension of HRQoL-measurement. This distinction allowed me to defend the reliance of HRQoL-measurement on a person's judgments normatively. Further, I could replace Hausman's (2015) methodological understanding of preferences and their measurement with the state-of-the-art conception of preferences developed by Clarke (2016), Guala (2019) and Thoma (2020b). This allowed me to defend the measurement of individual judgments among health states by employing RPT.

Second, I countered Hausman's objection that HRQoL-measurement should be abandoned since wellbeing is the wrong concept to evaluate health. I argued that his argument calls for a broader measure of health, but that it does not reject the possibility to measure HRQoL*. That is, a measure of the impact of health states on wellbeing.

Third, I offered an interpretation of the current empirical findings on preference change which are in line with Paul's (2014) notion of transformative experience. This allowed me to highlight that HRQoL should be elicited through patients' judgments.

Finally, two questions for further research emerged. First, how should health be evaluated if HRQoL* is one dimension of this measure? I would propose to work towards a multidimensional measure that

includes HRQoL* and an understanding of health as functional efficiency in addition to alternative, still to be defined, dimensions. Two points are key: On which dimensions should health be evaluated and how can these dimensions be combined?

Second, what explains the systematically different judgments between patients and members of the public? In this thesis, I argued that the judgments of patients are likely to be better than those of the members of the public. However, I could only offer a tentative explanation for this, emphasising the uniqueness of experience. Lastly, though, I think that it has to be an empirical task to explain preference change.

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